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The hypothesis that, for vocational and nonvocational teachers, a directive teaching style would be more effective with concrete authoritarian students and a nondirective teaching style would be more effective with abstract, nonauthoritarian students was tested in a two-phase study. A behavior rating scale, Student Perception of Teacher Style (SPOTS), was developed and tested in phase 1, while 12 directive and 12 nondirective high school teachers (half vocational and half nonvocational), chosen on the basis of their SPOTS scores, served with their students as subjects in phase 2. Student satisfaction with the course, student relative preference for the teacher, and student achievement (grades) were analyzed separately for vocational and for nonvocational teachers by two factors: teacher directiveness or nondirectiveness and student personality orientation (as obtained from the Interpersonal Topical Inventory and the F-scale which were completed by the students). Findings showed that all students were more satisfied with, preferred, and earned high grades from nondirective teachers in both vocational and nonvocational subjects, and that abstract and nonauthoritarian students showed differentiation between directive and nondirective teachers while concrete and authoritarian students did not. (An 86-item reference list and an appendix containing the tests used are included.) (SM)

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FINAL REPORT

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A STUDY OF THE EFFECTIVENESS OF DIRECTIVE VERSUS NON-DIRECTIVE VOCATIONAL TEACHERS AS A FUNCTION OF STUDENT CHARACTERISTICS AND COURSE FORMAT

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New Brunswick, New Jersey

September 1968

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A major acknowledgement of thanks goes to the late Mr. Robert Glassett, Director of Vocational Education for the County of Somerset, New Jersey, and Dr. Neal Perkins, Director of Vocational Education for the County of Bergen, New Jersey. Both of these outstanding educators provided the setting for this study and enabled project staff to observe and collect data in their schools.

Prior to the completion of this study, Mr. Glassett unexpectedly passed away. In tribute to his help for this study, and service to the State, this report is dedicated to him.

to the late Robert P. Glassett, a true educational innovator

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SUMMARY

The purpose of this study was to compare the effects of directive and non-directive vocational high school teachers on students of different personality orientation in different subjects. Past research contrasting the effects of directive (also called teacher-centered or autocratic) and non-directive (also called learner-centered, democratic) teaching have produced mixed and contradictory results. However, few studies considered teaching style in interaction with student personality and subject matter. The hypothesis was offered that directive teachers would be more effective with concrete, authoritarian students and non-directive teachers more effective with abstract, non-authoritarian students.

The problem of providing an operational definition of teaching directiveness was pursued through the literature and yielded a definition of the directive teacher as structured, absolute, and formal. These terms were further analyzed to provide a 10 item operational definition around which three rating scales were constructed, two to be completed by trained observers, and one (the Student Perception of Teacher Style scale or SPOTS) to be completed by students.

Phase I of the study was conducted to establish the reliability and validity of the SPOTS as a suitable and efficient means of describing teacher behavior in terms of directiveness. Stu-

dents in the classes of 22 teachers in two vocational high schools rated their teacher on the SPOTS while trained observers observed those teachers and rated them on the two observer instruments. The teachers also completed a personality measure related to the directive - non-directive construct.

Correlational analyses showed the SPOTS to be sufficiently reliable across students judges and valid in terms of its relation to the observer measures to mark it as suitable for testing the hypotheses of the study. In addition, intercorrelational and factor analyses among the SPOTS items made it possible to reduce the original 32 item SPOTS to a compact, internally consistent, and relatively pure 17 item measure of teacher directiveness.

Phase II of the study, undertaken to test the basic hypothesis of the study, utilized 24 teachers in two vocational high schools selected from among more than 40 on whom SPOTS ratings were obtained. These 24 represented 12 directive and 12 non-directive teachers with half of each group teaching vocational subjects (electricity, auto mechanics, etc., primarily in the shop setting), and half teaching non-vocational subjects (English, mathematics, etc., exclusively in a classroom setting). Juniors and seniors in the classes of these 24 teachers indicated their satisfaction with the course (on a rating scale) and their relative preference for the teacher (on a nomination form). In addition, grades for each student in the course in question were obtained at the close of the school year. Students completed two personality measures, the Interpersonal Topical Inventory, and the F-Scale. These measures made it possible to classify students as abstract or concrete information processers and as authoritarian or non-authoritarian in attitude structure.

Separate analyses were undertaken for vocational and non-vocational teachers. The three dependent measures, course satisfaction, teacher preference, and grades, were analyzed by two factors, teacher directiveness - non-directiveness, and student personality orientation. Separate analyses were performed for each of the personality measures. N's ranged from 99 to 344 since all students did not complete all measures and non-vocational teachers had larger classes.

Results showed that students were more satisfied with, preferred, and earned higher grades from non-directive teachers in both vocational and non-vocational subjects. The primary finding of the study was that both abstract and non-authoritarian students showed differentiation between directive and non-directive teachers while concrete and authoritarian students did not. As predicted, abstract and non-authoritarian students preferred, were more satisfied with, and obtained higher grades from non-directive teachers as opposed to directive teachers, while concrete and authoritarian students reacted similarly to the two styles. In an analysis contrasting vocational and non-vocational teachers directly, results showed that vocational teachers were markedly preferred but that students earned higher grades from non-vocational teachers.

Interaction effects were not as frequent nor as large as had been expected. It was argued that this was partly a function of the somewhat narrow range of scores on the student personality measures based on the relative homogeneity of the vocational high school population.

The implications of the findings for education were discussed. Primary among these was the recommendation that teachers be trained to "radiate" more than just a single "typical" style and to differentiate between different student orientations. Armed with the skill to use alternative styles and identify individual differences, teachers would be able to match their style to the predominant student orientation, thus increasing their teaching effectiveness.

CHAPTER I

INTRODUCTION

A. Problem

It does not seem unreasonable to propose the view that the effectiveness of a particular educational technique or approach will be a function of the characteristics of the person to be taught and also the milieu in which it is taught. Analagously, when confronted by a dog, all persons will not be equally afraid; those who are afraid of dogs (an individual difference measure) will be most afraid. What is being suggested is that educating people is a complex matter which may well defy simple relationships. To ask whether a particular manner of teaching "works" or not is to propose an oversimplification. The more appropriate question to ask is whether the teaching approach works for certain kinds of individuals in certain kinds of situations. This more complex model may be termed the interaction model in which behavior is seen as a joint function of the characteristics the individual brings to the situation and the essentials of the situation itself. The application of this model to education represents a major segment of the problem.

The content of the problem lies in the highly researched area of directive versus non-directive teaching techniques. Many studies in the past have examined the efficacy of directive and non-directive teachers. The findings, to be reviewed below, are generally inconclusive. The bulk of the studies, characterized by "lack of methodological rigor and inadequate research design" (Anderson, 1959), indicate somewhat of a superiority for the non-directive approach. However, other studies show no differences or find in favor of the directive approach. In all, the failure of past researchers to use the interaction model for predicting behavior is notable. Only a very few studies, and these are on the fringe of this area, consider individual differences or differences in the milieu or format in which the material was taught. Thus, the practical questions of with whom to use directive or non-directive techniques, and in what course formats, have yet to be answered satisfactorily. This is the problem to which the proposed research was directed.

It is considerably more than coincidental that this study was undertaken in a vocational education setting. Vocational education has typically featured an orientation toward individualized instruction. Perhaps the wide individual differences found among vocational students, or the "learning by doing" nature of the curricula is responsible for this emphasis. Within a system which is charged with the mission of providing individuals with skills in a large variety of areas as a prerequisite to entering the world of work, a high premium is placed on the individual as the educational unit. Thus, vocational educators, more than most, are aware of the importance of examining educational programs in the light of the individuals for whom they are intended. Furthermore, these individuals (viz, vocational students) are in many ways different from their academic counterparts. An examination of a population highly comparable to the vocational student population namely the Naval enlistee population, shows that these persons differ considerably from the population of college students or high school students in pre-college programs on such variables as socio-economic status, authoritarianism, cognitive complexity, intelligence, etc. (Tuckman, 1965, 1966a,b). Direct differences between vocational and academic students on such parameters as IQ, socio-economic status, and aspirations have been dramatically shown by Kaufman, Schaefer, et.al. (1967). It was considered likely that the population of vocational students would be more sensitive to differences between directive and non-directive teaching since their home lives represent such extremes as control by fear of punishment and parental indifference (Bronfenbrenner, 1958). Thus, it is suggested that while the findings of this study were expected to generalize on a limited basis to other student populations, their primary applicability will be to the vocational student population, with its unique parameters, from which the sample was drawn.

The vocational education setting also necessitates the discrimination between two relevant formats or milieus, the classroom and the shop. Not only are the approaches to teaching different in the two formats, but the subjects taught in each are different as well. In vocational schools, basic education courses (e.g., English, mathematics, science) and shop-related courses are taught in the classroom while vocational training is provided in the shop. The extensive use of the shop as a teaching format is unique to vocational education. Since the classroom and shop involve different physical arrangements of students studying different subjects with different student-teacher relationships applying (the shop is often a one-to-one relationship between student and teacher while the classroom is one-to-many), it was expected that the effects of directive and non-directive teaching on individuals with different orientations would differ from one format to the other. Such a finding would be especially important to vocational education, especially in teacher training, as will be discussed later.

The principal vehicle used in this study for classifying individual differences was a model which distinguishes people in terms of their cognitive structure, that is, the extent to which they react to their environment in a sensitive and flexible manner as opposed to a categorical and rigid manner. Within this framework, individuals were also distinguished on the basis for their self-concept. This personality model will be described in considerably more detail below. It will suffice at this stage to point out that the personality model chosen was clearly relevant conceptually to the phenomenon under investigation, directive and non-directive teaching. The personality model lends itself to describing individuals in terms of their proclivity to directiveness, since it identified individual orientation to authority and ambiguity. The categorization of people in terms of cognitive structure was clearly more relevant to the experimental question than categorization based on race or aggressiveness would have been, and broader than would be categorization based on achievement motivation, for instance. The point being made here is that one must ask if directive teaching is more effective with individuals who, because of their basic personality, are oriented toward directive thinking. Thus, the personality model chosen must lend itself to developing hypotheses concerning directive and non-directive teaching.

The basic problem, then, was whether there are individuals for whom directive teaching was more effective than non-directive teaching, and other individuals for whom non-directive teaching was more effective than directive teaching, could we predict who these two types of individuals were, and would these relationships hold in both classroom and shop teaching situations. Clearly, the answers to these experimental questions are of considerable importance to the mission of vocational education. If classroom and/or shop teaching can proceed more effectively by matching student characteristics and teacher techniques, then let us know this and move to implement this knowledge. Perhaps the directive teacher functions in some ways as a father surrogate for the disadvantaged or fatherless youth. Perhaps we are driving our independence-oriented youth further toward the brink of rebellion by attempting to direct them. Perhaps we are expecting too much inward self-direction from some students and not enough from others. The cause of education is furthered when the benefits of teaching are maximized. The benefits of education can perhaps be maximized by matching teaching techniques to individual needs, using what Hunt (1965; Hunt & Hardt, 1965) calls the "differential diagnosis-differential treatment technique".[1] This is an approach which has been endorsed by Thelen (1950) when he suggests that we need to examine the individual learner's needs and frame of reference within the context of the classroom situations. He further asserts that classroom learning experiences have potency for the learner to the extent they help him meet his needs.

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[1] Hunt has gone so far as to spell out the implications of this approach for teacher training in his discussion of the training of training agents (cf. Hunt, 1966a).

This study was aimed at collecting data to determine whether teachers should be trained in both directive and non-directive techniques so that they can maximize their effectiveness by using the former technique with one kind of student and the latter technique with another kind of student. At present, teachers are trained to be sensitive to differences between individual pupils in terms of such variables as aptitude or intelligence. The teacher learns to discriminate between the slow learner and the fast learner. He also learns to react differentially to these two types. That is, after he makes a differential diagnosis of the student's learning potential, he uses a differential treatment to teach him. He "programs" himself in terms of the observed difference in his students. For the fast learner he may prescribe outside readings or advanced shop work; for the slow learner he may prescribe additional teacher contacts and a concentration on fundamentals. Based on this study it may be possible to suggest that teachers learn to discriminate between directive and non-directive student orientations as they discriminate between the fast and slow-learner, and once having made this discrimination, they develop the capacity, through teacher training, to "program" themselves to teach directively or non-directively, depending on the student in question.

This study was also aimed at finding out whether the teacher should adopt a different style of teaching for the different milieus. That is, it may be necessary to train teachers to teach both directively and non-directively so that they may use one approach primarily in the shop or lab and the other in the classroom. Again, this would suggest that teachers learn to make differential diagnoses and "program" their teaching (or treatment) accordingly.

This study was carried out in a vocational setting in order to compare the effects of vocational-subject teaching and academic subject teaching. Vocational teachers are often journeymen in a trade or craft who turn to teaching after many years of trade experience. Many of them have no college degree and some of them have not completed high school. Against this background, comparisons between interaction in a classroom and a shop was seen as important.

A quick review of the myriad of studies in this area yields the following confusion.

The classic study in this area was conducted by Lewin, Lippitt, and White (1939) with groups of young boys brought together as alleged clubs. The three "social climates" compared were autocratic, democratic, and laissez-faire. The autocratic climate was highly directive with complete control resting with the adult leader, while the democratic climate was non-directive insofar as the boys themselves participated in the decision-making process. The laissez-faire climate was totally non-directive; the leader did not participate. (In the proposed study the term "non-directive" is used in the sense of democratic pupil-centered leadership rather than total non-participation or laissez-faire.) The highly directive autocratic climate resulted in productivity equal to that of the democratic, or non-directive, climate. However, satisfaction was considerably greater in the democratic climate and democratic leaders were preferred. The results of the laissez-faire climate are not relevant and will not be discussed. The term non-directive as used in the proposed study refers to an environment in which a leader serves a guidance role. In the laissez-faire climate, the leader was totally non-contributory. In this study the three climates were created by training leaders to play the desired roles.

Flanders (1951) found the non-directive or guided learner-centered approach to yield greater subject mastery and greater satisfaction. A study by Thompson and Tom (1957) in the area of vocational agriculture demonstrated greater mastery of course content as a result of the pupil-centered (non-directive) approach over the teacher-centered approach, but no differences in attitudes resulted. Other studies which indicate that learner-centered (or non-directive) teaching produces superior learning are those of Zeleny (1940) with sociology classes, Allport (1950) with social relations classes, Perkins (1951) with in-service teacher training, and Brandwein (1955) with science classes.

Research such as that of Anderson and his co-workers (1945, 1946a, 1946b), Tiedman (1942), and Cogan (1958) suggests that dominant teachers produce undesirable behaviors in their students. However, in those studies as well as many of those cited above, directive teaching has tended to include rejection and aloofness. The failure of so-called directive techniques may reflect the failure of teachers who reject their students. Directive techniques cannot be adequately evaluated unless separated from rejection and other undesirable emotional states.

Other studies have shown no differences between directive and non-directive approaches. Rehage (1951) with social studies classes, Krumboltz and Farquhar (1957), Lorge et. al. (1958) in a literature review, Ostland (1956), Haigh and Schmidt (1956), and others have failed to observe or report significant differences between the two approaches.

Finally, some studies have reported superior effects for the directive approach. The work of Brookover (1943) with history classes, Asch (1951) with psychology classes, and Guetzkow et. al. (1954) with psychology courses, among others, suggests that the teacher-centered approach is superior.

The literature is contradictory and inconclusive. Perhaps one reason for this absence of consistent results is the fact that none of these studies considered student characteristics as a moderator of teaching technique efficacy. The present study was an attempt to overcome this shortcoming.

B. The Interaction Model Approach

Only a handful of studies have attempted to consider both teaching technique and students' needs concomitantly. Wispe (1951) in a study of social relations courses, observed no overall differences between the efficacy of directive and non-directive techniques. However, among students of low ability, the directive approach was more successful. Similarly, Calvin, Hoffman and Harden (1957) found that non-directive or permissive techniques were more successful with students of high intelligence, while among students of lower intelligence, no differences among techniques appeared.

A study conducted by Siegel and Siegel (1965) merits close examination. This study investigated the learning of facts and concepts in terms of whether the final examination in the course emphasized concepts or facts, whether the exam was proctored or not, whether the students had personal contact with the instructor (these were the situational variables); the academic ability of the student, the prior knowledge of the subject matter the student had, whether the students were motivated toward the course or not, and the educational set of the students, whether factually set or conceptually set (these were the individual or dispositional variables). Data was collected in each of two courses. The most significant findings emerged for the course that was least liked by the students, and then only in the area of concept acquisition. Here it was found that conceptually set students performed better if the exam was conceptually-oriented and factually set students performed better if the exam was factually-oriented, under the following conditions: if the exam was proctored, if the students had little personal contact with the instructor, if the students had much prior knowledge of the subject matter, and if the students had high ability. It was not necessary that all of these conditions be satisfied; it was sufficient for at least one of them to be satisfied. Overall, the study showed the fact-oriented students do better on fact-oriented exams and concept-oriented students do better on concept-oriented exams, but only when other conditions are satisfied. This interaction approach can serve as a general model for the study being proposed.

A study by Heil and others (1960), which made use of the interaction model is relevant here. Fifty elementary teachers were classified into one of three categories, namely: spontaneous, orderly, or fearful, on the basis of personality questionnaires. While the study found that, overall, orderly teachers were effective (in terms of pupils' achievement on standardized tests) and fearful teachers ineffective, a breakdown between students showed that spontaneous teachers were most effective with strivers and docile conformers, while orderly teachers were more effective than the other types with opposers. Thus, this study illustrates that distinguishing between students on the basis of some individual measure, leads to a far greater predictability of effectiveness of different types of teaching.

C. Objectives

The objectives of the study were as follows:

(1) To develop and validate a measure of teacher directiveness

(2) To test the following hypotheses:

a. Directive teachers produce a better course performance in students who are highly directive-oriented, viz., concrete-dependent Ss and non-directive teachers produce a better course performance in students are highly non-directive oriented, viz., abstract-independent Ss.

b. Directive teachers produce more satisfaction in and are more preferred by students who are highly directive-oriented, viz., concrete-dependent Ss, and non-directive teachers produce more satisfaction in and are more preferred by non-directive oriented students, viz., abstract-independent Ss.

As has been described above, concrete-dependent individuals are quite dependent upon other persons, particularly authorities, for guidance, structure, and ambiguity reduction. Their cognitive simplicity leads them to prefer situations that are structured for them, and in such situations they function best. Tuckman (1967a) has shown that concrete-dependent Ss perform better in structured situations, and that they prefer such situations to unstructured ones. Sieber and Lanzetta (1964) have shown that concrete-dependent Ss have a preference for certainty over uncertainty. Directive teaching represents a structured situation where the expected behavior of the student is prescribed by the teacher. Consequently, there is little ambiguity or uncertainty. In such a situation, concrete-dependent Ss should perform better and be more satisfied. They are expected to prefer the directive approach. Abstract-independent Ss, on the other hand, are independent and cognitively complex. They perform better in unstructured situations, and prefer them (Tuckman, 1967a). They have a preference for uncertainty (Sieber and Lanzetta, 1964). Since the non-directive teacher creates a somewhat unstructured and uncertain situation in which the students must provide some of their own guidance, abstract-independent Ss should perform better, be more satisfied and manifest a preference for the teachers involved.

c. The directive teacher: directive-oriented student effects will come primarily from the classroom setting, while the non-directive teacher: non-directive-oriented student effects will come primarily from the shop setting.

The effects of non-directiveness on non-directive students should be most evident in the shop which is by its very nature unstructured and non-directive. Students are forced to work on their own and autonomy is fostered. This should facilitate the effect of both the non-directive teacher and the non-directive-oriented student. In the classroom which is by its very nature structured, non-directive effects will have less opportunity to appear. However, the structured classroom will increase the probability of appearance of directive teacher and directive-oriented student effects, while these effects will be less likely to appear in the relatively unstructured shop setting. In the shop, directive teachers will not promote better grades and more satisfaction among directive-oriented students, but non-directive teachers will promote better grades and more satisfaction among non-directive-oriented students. In the classroom non-directive teachers will not promote better grades and more satisfaction among non-directive-oriented students, but directive teachers will promote better grades and more satisfaction among directive-oriented students.

The study was planned as two phases. The first objective, i.e., to develop and validate a measure of teacher directiveness constituted the primary problem of the first phase (along with the development of other instruments required for testing the hypotheses of the study). Thus, the work of the first phase was concerned primarily with psychometrics. Such an effort included: (1) the development of an operational definition of teacher directiveness and non-directiveness, (2) the development of a practical, valid, and reliable measure of teacher directiveness, (3) a demonstration of the validity and reliability of the instrument. The second phase of the study included the utilization of the measuring device in phase I for testing the hypotheses listed above.

D. The Personality Model

The personality model used in this study was originally conceived of by Harvey, Hunt, and Schroder (1961). The version used here was first set forth by Tuckman (1967b). Within this version individuals are classified into one of four nodal personality systems in terms of level of cognitive complexity and independence-orientation. The scheme appears in Figure 1.

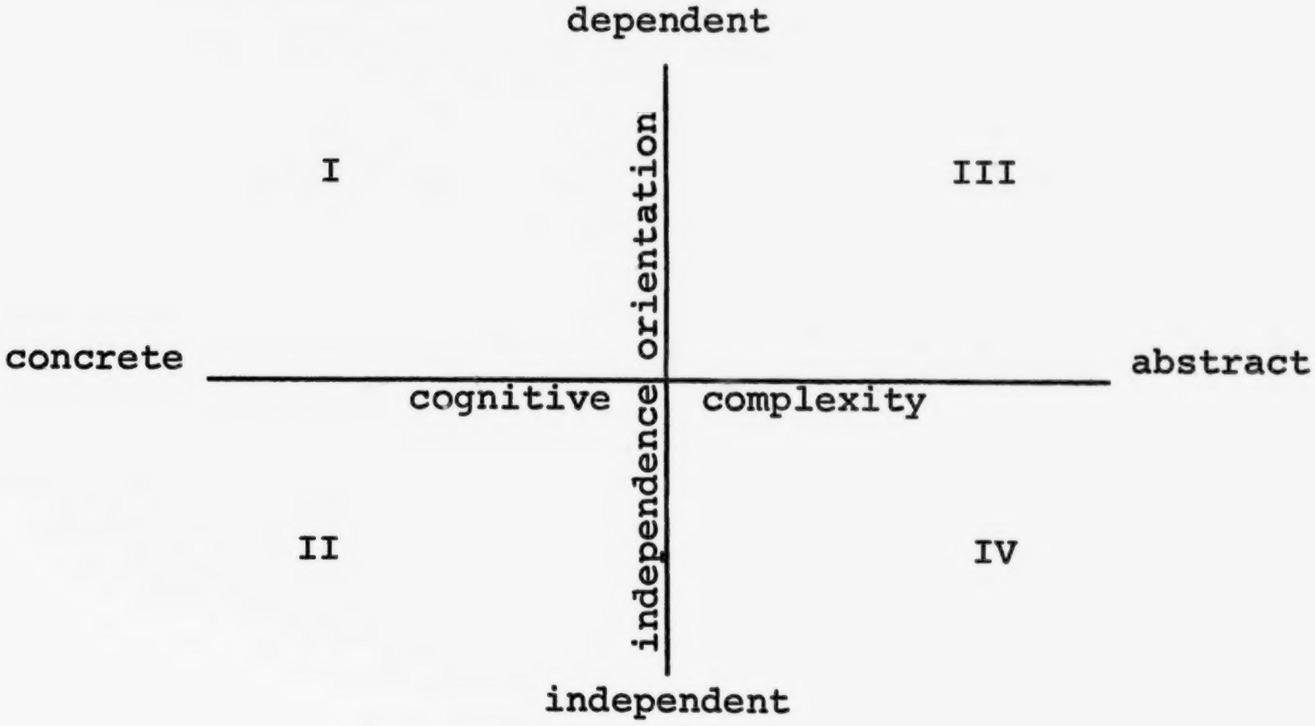

Figure 1. The bi-dimensional personality systems model.

It is recognized that the two classification dimensions, cognitive complexity and independence-orientation are not completely independent. It would be more accurate to describe them as being interdependent.

System I (concrete-dependent). Individuals process inputs in a categorical, polarized, simple and relatively fixed manner. Simplicity is maintained and ambiguity avoided by reliance on absolute norms and authorities, self-definition in terms of external anchors, and overgeneralization and stereotopy.

System II (concrete-independent). Individuals process inputs in a highly simple manner but have developed a strong, independent sense of self. However, abstractness for differentiating within self and surround is lacking. Consequently, the individual is absolutely oriented away from norms, authorities and other external forms of control.

System III (abstract-dependent). Individuals process inputs in a flexible manner and perceive alternatives. This greater degree of integrative complexity enables the individual to separate self and other, to differentiate within each, and to integrate by matching characteristics and behaviors of self to reactions of others. Consequently, the individual is oriented toward people, is empathic to them, sensitive to their role expectations, and dependent on them as a source of gratification.

System IV (abstract-independent). Individuals process inputs in the most flexible manner, and perceive the maximum number of alternatives implicit in information received. This great degree of integrative complexity enables the individual to be truly information-oriented and to process information without interpersonal constraint; that is, to be autonomous.

The fact that System IV individuals or homogeneous groups of System IV individuals perform in a more cognitively complex manner (i.e., seek more information, perceive more alternatives in this information, and respond more complexly) than System I individuals, or homogeneous groups, has been well documented (cf. Schroder et. al., 1967; see also Sieber and Lanzetta 1964; Suedfeld, 1964; Tuckman, 1967a). The fact the individuals or homogeneous groups of the four systems demonstrate the degree of cognitive complexity in performance and creativity predicted by the model has also been shown (Tuckman, 1964; 1966a).

The independence-orientation of individuals, or homogeneous groups, of the four systems has also received some documentation (Streufert, 1962; Harvey, 1964; Janicki, 1964; Tuckman, 1964, 1965, 1966b). This research has shown the following to be characteristic of the systems: (a) System I individuals and homogeneous groups: more authority-orientedness or authoritarianism, more dependent on others for ambiguity reduction and structure, and more stereotypical responding and attitude generalization; (b) System II individuals and groups: an orientation away from and against authority, a high degree of independence, negativism, uncooperativeness, manipulativeness, rejection of those who differ, little tendency to reveal personal information about themselves to others, and little affiliativeness; (c) System III individuals and groups: an orientation toward people, sensitivity to their needs and to role expectations, an orientation toward cooperation, and a strong tendency to reveal personal information about themselves to others; (d) System IV individuals and groups: reaction to people and interaction in an informational manner, little tendency to respond stereotypically or overgeneralize, little tendency to reveal personal information to others, little reliance on others as a source of influence, and low authoritarianism.

E. The Literature and Definition of Terms

In approaching the problem of developing a measure of teacher directiveness, it became evident that the first step required was a definition of concepts in behavioral terms. Exactly what did we mean by "directive" or "non-directive" as applied to teaching? Anderson (1959) has identified as a general shortcoming of research in the field the failure to carefully define terms. In order to avoid this pit-fall hypotheses would have to be carefully spelled out before we could determine what specific teacher behavior out of a total population of observable teacher behaviors could be considered indicative of a more general pattern of directiveness or non-directiveness.

Literature was reviewed with special attention to specific teacher behaviors which might be associated with varying teaching styles. This review of the literature strengthened the impression gained from direct classroom observation that all too often similar sets of teacher characteristics and teacher behavior patterns have been given varying names while, conversely, teacher types or teaching styles identified by the same adjectives have involved quite different clusters of behaviors. A brief resume of some of these opposing conceptualizations might help however, to clarify the rationale underlying the eventual choice of teacher behavior categories and the sub-theories about dynamic processes from which, as Thelen (1959) points out, these categories had of necessity to evolve.

The original concept of directiveness used in this study was perhaps most closely comparable to what Lewin, Lippitt & White (1939) have labelled autocratic. They describe the autocratic leader of a boys' club as determining practically all policies concerning activities and procedures in the club, taking full responsibility for assigning tasks and work partners, giving a high percentage of orders, directive commands, and non-constructive criticism; in short, engaging in adult behavior which has a limiting effect upon the scope and spontaneity of child activity. In contrast, the democratic leader of the Lewin, Lippitt & White study is characterized as emphasizing guidance and stimulation of self-guidance, leaving the division of responsibility up to group members, and indulging only in objective and fact-minded praise or criticism.

Anderson & Brewer (1945), in studying teachers' classroom personality, divided the behavior of kindergarten teachers into dominative and socially integrative categories. They saw integrative teacher behavior as that which expands childrens' opportunities for self-directive and cooperative behavior with teacher and with peers, while dominative teacher behavior tends to lead to distracted, aggressive, non-cooperative, conduct. McGee (1955) used Anderson's terms to describe one dimension of a broader pattern of teacher behavior as part of his investigation of the relationship between scores on the F-Scale and observed teacher behavior. Such behavior as telling pupils each step to take so that future steps were uncertain, assigning work tasks and work companions, and showing intolerance of ideas and suggestions made by pupils, were considered by McGee to be representative of dominative teacher behavior. Other examples of dominative behavior included teacher interruption of pupils, more teacher talk than pupil talk, and strict insistence on order at all times.

The terms "learner-centered" vs. "teacher-centered" grew out of Withall's (1949) work on the measurement of social and emotional climate in classrooms. If the proportion of teacher statements falling into such categories as learner supportive, acceptant of, or problem structuring outweighed the proportion falling into such categories as directive, reproving, disparaging, or teacher-supportive, the teacher was said to be learner-centered. Thelen (1951) also employed the adjectives learner-centered and teacher-centered to describe teacher-pupil interaction. A closely allied concept is that of Rehage (1951) who contrasted classroom behavior on the basis of relative amounts of pupil-teacher planning versus teacher directive procedures. Flanders (1951) described teacher behavior in Withall's terms to indicate "symptom syndromes" indicative of "basic factor-complexes influencing perceptions," feelings and behaviors of the group or individual pupil. McKeachie (1954) described a student-centered classroom as having a higher percentage of one or more of the following qualities: student participation in goal interaction, instructor acceptance of inaccurate statements, group cohesiveness and amount of time devoted to discussion of personal experiences and problems. Thompson & Tom (1957) also utilized the adjectives pupil-centered vs. teacher-centered to differentiate teaching styles in a vocational agriculture program. Medley & Mitzel (1958) found the degree to which the social structure centers about the teacher to be one of three orthogonal dimensions revealed by a study of the factorial structure of the 14 scoring keys on which their Observation Schedule and Record is based. In addition they consider the relative amount of student-initiated activity an important variable in the measurement of classroom behavior.

Ryans (1961) characterized certain teacher behavior as exhibiting "child centered permissiveness" or "democratic classroom procedures." In addition he differentiated teachers on the basis of their point of view concerning rigid vs. flexible school programs involving pupil and parent participation. Also related to a concept of teacher bheavior as directive or non-directive is Ryans' description of one of the three general patterns of teacher behavior which emerged from a factor analysis of the obervation data of the Teacher Characteristics Studies. This pattern varied on the continuum of responsible, businesslike, systematic teacher behavior vs. evading unplanned, slipshod teacher behavior.

The terms directive vs. permissive or non-directive are also used by many researchers in the field. Medley & Klein (1957) discriminated between directive and permissive (democratic) teachers on the basis of whether or not a class was encouraged to work in groups, whether students were permitted to leave their seats without asking, whether all students used the same book at the same time, how much homework was assigned, etc. In evaluating the effectiveness of directive vs. permissive teaching methods, Wispe (1951) described the directive method as being more subject matter-centered, relatively formal, and characterized by a high percentage of teacher talk. Christensen (1960), studying the relationship between pupil achievement, pupil-affect, teacher warmth, and teacher permissiveness, described permissiveness in terms of such variables as whether the pupils usually helped plan what the class is going to do, whether all work involved in solving arithmetic problems had to be shown, whether the teacher assigned homework every day, whether or not pupils were able to influence the teacher to change assignments, and whether the pupils knew when they had done a good job in class. Solomon, Rosenberg, and Bezdek, (1964) factored out eight dimensions of teacher behavior relating to students learning. One of these factors was related to permissiveness vs. control. In a subsequent study Solomon (1966), was interested in determining whether student course satisfaction correlated more highly with relatively large proportions of teacher lecturing or broad expressive student participation encouraged by the teacher; and whether it correlated more highly with teacher control and emphasis on facts or teacher permissiveness.

The Amidon & Flanders (1963) system of analyzing teacher-pupil interaction categorizes teacher talk as direct or indirect with the obvious inference that a teacher who engages in one kind of talk more than the other can also be categorized as directive or non-directive. Acceptance of feeling, praise, encouragement, friendly joking, acceptance and use of student ideas, and use of student-directed questions are considered indirect influence. Verbal behavior such as lecturing, rhetorical questions, giving directions or orders, and criticism or justification of authority are considered direct influence. Also taken into consideration is amount of student talk relative to amount of teacher talk.

There have been other somewhat similar theories which have varied in important aspects of emphasis, Tiedman (1942) differentiated between aggressive overt teacher behavior (domination, ridicule, punishment) and passive, more subtle forms of teacher behavior. Hughes speaks of teacher power as "the reality of the superior-subordinate relationship with the power component held by the teacher." Hypothesizing that student influence can be known only by the teachers response to what the student says and does she postulates a continuum of teacher power vs. teacher responsiveness. Cogan (1954) sees teacher behavior as "preclusive" or "inclusive." Preclusive behavior is described in overly evaluative terms as that which tends to keep the pupil peripheral to the processes, experiences, and decisions of the classroom; while inclusive behaviors tend to keep the pupil central to the processes, experiences, and decisions of the classroom.

Using their own personality measure, the Manifold Interest Schedule, to classify teachers on the basis of personality and academic interest, Heil, Power, & Feifer (1960) differentiated six general personality profiles. Two seem particularly germane to this discussion, despite the fact that they associate such personality factors as warmth and acceptance with other more readily observable and measurable teacher behaviors. One profile, classified as turbulant, involved lack of structure and ordering while permitting free expression of impulses in children. The other type, considered self-controlling, focused on structure, order, planning, high work orientation, and sensitivity to children's feelings. Shapiro (1963) reports an analysis of teacher behavior in terms of how the teacher structures childrens' cognitive experiences. Teachers were differentiated on the basis of whether they emphasized memorization or understanding, reporting or conceptualization, gave step by step directions to solutions of problems or encouraged children to find their own solutions. Other dimensions of difference involved tolerance of ambiguity and confusion vs. emphasis on production, supportiveness of childrens' thinking vs. the tendency to interfere and interrupt. Lewis & Newell (1962), analyzing classroom interaction and communication behaviors, postulated a difference between instructors based on sending vs. receiving orientations. Hoy's (1966) study of the relationship between dogmatism and pupil control idealology in public school professional personnel, suggested custodialism vs. humanism as the two opposing philosophies which influence the pupil control idealology of teachers. Hoy saw the custodial school as characterized by an autocratic organization, rigid pupil-teacher status hierarchy, and a unidirectional flow of power and communication downward. In addition the prevading atmosphere is one of pessimism and "watchful mistrust." In contrast the humanistic school stresses cooperative interaction and experience with learning and behavior viewed in psychological and sociological, not moralistic terms. Self discipline, not strict teacher control is stressed. The atmosphere is "democratic", involving a two-way communication system.

With direct classroom observation and prior studies in the area as a point of departure, the following guide-lines were generated. For the purposes of this study, directiveness or non-directiveness in teaching would be viewed as unitary an attribute as possible not to be confounded (as has so often been the case) with such evaluative dimensions as teacher competency or teacher affect (warmth or coldness). The directive teacher was viewed as one for whom procedure, order, and organization were extremely important. His sense of clear-cut responsibility and structure was expected to color both his cognitive and social functioning. Concrete teacher behaviors were chosen on the basis of face validity, intuition and the knowledge derived from first-hand classroom observation that such behaviors did in actuality occur in vocational school classrooms and shops and therefore could be observed. These behaviors were separated conceptually into two major categories: structure, which refers to the manner in which a classroom is run and learning situations manipulated, and interpersonal, which refers to the way the teacher relates to the student as a person.

Those behaviors which were identified as defining directive teaching (and their converse as non-directive teaching) are as follows:

Structure

(1) formal planning and structuring of the course
(2) minimizing informal work and group work
(3) structuring group activity when it is used
(4) rigidly structuring individual and classroom activity
(5) requiring factual knowledge from students based on absolute sources

Interpersonal
(1) using absolute and justifiable punishment
(2) minimizing the opportunity to make and learn from mistakes
(3) maintaining a formal classroom atmosphere
(4) maintaining a formal relationship with students
(5) taking absolute responsibility for grades

In short, the directive teacher was seen as being structured, absolute, and formal. These descriptions will take on greater behavioral meaning later when actual scale items are discussed.

F. Additional Literature Relevant to the Hypotheses

The four studies reviewed below deal with teacher style and employ a version of the personality model used in this study.

Harvey, et. al. (1966) sought to determine the correlation between teachers' belief systems (as indicated by their conceptual level according to the two measures of concreteness - abstractness employed) and certain classroom behaviors presumed to result in educationally favorable classroom atmospheres. These behaviors "had been selected primarily to reflect differences in the extent to which the teacher fostered independence, creativity, diversity of interests, enjoyment, and instrinsic motivation" (Harvey et. al., 1966; p. 375) on the hypothesis that the more concrete teachers would be more apt than the more abstract teachers to impose their own standards and goals upon their students and to be less tolerant of student deviation from these goals and standards. Thirty teachers (equally divided on the basis of personality classification as representing System I, III or IV, as differentiated by the measures employed) were observed and rated on a six point scale as being "far," "considerably," or "slightly" above average, or "slightly," "considerably," or "far" below average on twenty-six behavioral dimensions such as expression of warmth toward children, flexibility in meeting the needs and interests of the children, attention to the individual child, encouragement of individual responsibility, consistency of rule enforcement, etc. All teachers were rated by four judges, two observing during one 2½ hour period and two observing during a second 2½ hour period one week later. Since no significant differences in ratings were found between the two rating sessions, the values used were based on the ratings of the four observers who observed each teacher. The relationships among the rating dimensions were determined by means of a Tryon cluster analysis which factored out two major clusters, described by the researchers as "dictatorialness" and "task orientation."

Results confirmed the hypothesis of behavior differences between the more abstract and the more concrete teachers (System IV or I) on all twenty-six dimensions, with System III teachers scoring between the two extremes on twenty-three of the twenty-six items. All of the specific dimensions on which System I and System IV teachers differed significantly were contained within either the factor of dictatorialness or task orientation. Although the System I teachers had had significantly more teaching experience, the System IV teachers produced what the authors postulate to be an educationally superior classroom atmosphere in their Head Start classroom.

The authors concede that the differential effect of teacher personality on future learning and behavior of the children with whom they interact in Head Start classes can only be hypothesized at this point. It is just this question of relative effectiveness of differential atmospheres and teaching styles on student achievement and satisfaction which is the central problem to which the present research addresses itself.

Joyce and Hunt (1966) describe two exploratory investigations also dealing with the relationship between conceptual level of teacher trainees and their initial capacity "to radiate a reflective educational environment." The reflective pattern was chosen as the criterion on the assumption that it represented a more abstract manner of functioning, indicating greater flexibility of approach. Furthermore since the reflective teaching pattern is least frequently seen, the authors tentatively hypothesized that if a teacher trainee can radiate a reflective environment, "he is also likely to be capable of radiating a structured environment since this latter is by far the most frequently occuring teacher pattern." It is just this ability to choose from a repertoire of teaching styles the one most appropriate to the needs of the particular student or group of students which is considered to be the optimal situation.

Results of both studies supported the original hypothesis of initial teaching style as a reflection of personality. The authors contend however, that this relationship clearly refers to preferred teaching style and does not preclude the assumption that effective teacher training can and should produce the skills and understanding necessary to result in a repertoire of teaching styles independent of teacher personality.

The present project's concern with the effectiveness of teacher style (directive or non-directive) as a function of student personality as measured by conceptual level seems echoed by the question "Which programs are more effective with certain kinds of students?" posed in the Characterization of 1966 Summer Upward Bound Programs (Hunt and Hardt, 1967). To determine the answer to this question, the twenty-one sample Upward

Bound Programs were classified according to dominant type of student (low vs. high conceptual level or interpersonal maturity) found in the particular progrmm and according to the prevailing type of program approach (structured vs. flexible). Students were classified as to conceptual level (CL) on the basis of scores on a Paragraph Completion Test and on a forced-choice scale purporting to measure the degree to which a person functions at a very low conceptual level or a low level of interpersonal maturity.

Site visitors rated programs on a 5-pt. scale along the following dimensions: program organization, program control, program warmth, program flexibility, and program committment. Programs were also rated anonymously by students by means of a Program Climate Questionnaire which included the following items: flexibility, autonomy, individuation, student evaluation, warmth, supportiveness, group harmony, and staff harmony. Flexibility and autonomy were found to be highly correlated and were combined to provide an index of program flexibility. Programs were divided into two groups on the basis of high or low flexibility and autonomy scores. Next the programs were independently classified according to the proportion of high CL students in the program. Four conditions then existed: (1) low CL students in a structured program; (2) low CL students in a flexible program; (3) high CL students in a structured program; (4) high CL students in a flexible program. The 1st and 4th conditions were considered "matched," and the 2nd and 3rd "mismatched."

The hypothesis was that low CL students, because of their relatively concrete orientation, would function best and be more amenable to change when the program was clearly structured and well-organized, and the students knew what to expect. Conversely, it was hypothesized that high CL students, considered more independent and inquiring, would function best and be more likely to change in an atmosphere characterized by its flexibility and reflectiveness. Change scores were considered as the criterion of effectiveness and were measured by pre- and post-program administration of specially prepared questionnaires and scales. Considering positive change in attitude towards the summer programs as a measure of satisfaction, students in "matched" programs could be said to have derived more satisfaction from their summer program than those in mismatched programs. And for those six measures where there was a significant overall change, three (motivation for college, possibility of college graduation, and interpersonal flexibility) showed a significantly greater change for students in matched programs. Likewise for the measures of self-evaluation of intelligence and internal control there was a strong tendency for the matched programs to produce greater change than the mismatched. Interestingly enough the measure relating to change in self esteem was found more likely to occur in structured programs generally than in flexible ones, with no evidence of differential effectiveness as a result of matching. These findings suggest to the authors the possibility of increasing the effectiveness of future summer programs by assigning students to specific programs on the basis of a match between program structure and student conceptual level. At present there is work in progress to try to assess the impact of the Summer Upward Bound Programs upon the student's academic achievement.

The Summer Upward Bound Characterization Project acknowleges its indebtedness to Dr. Hunt's earlier work with classrooms grouped homogeneously on the basis of conceptual stage. Within the context of a theoretical paper, Hunt (1966b) describes an exploratory study involving grouping of stage-similar lower-class adolescents. On the theory that conceptual development is a continuous process which under the proper conditions of interaction between stage and environment proceeds from the completely egocentric and concrete orientation of the young child to the highly abstract level of integrative complexity attained by some adults, Hunt postulates four differential stages of development. These stages of conceptual development are conceived of as varying "both in terms of cognitive variables or structure (degree of differentiation, integrative complexity) and in terms of motivational variables or dynamics (independence-dependence, empathic concern") (Hunt, 1966b, page 283). The specific conceptual task which characterizes each stage of development and the optimal environment which will allow first for articulation of the particular stage and then for transition to the next are described by Hunt, as are the consequences of a non-optimal environment, or the optimal environment not geared to healthy change as the individual progresses through a stage. These theories of natural change, then, are applied to the development of a "change model" designed to induce developmental progress in the student whose conceptual development has been arrested as a result of non-optimal interaction between conceptual stage and environment.

The general aim of the exploratory study described by Hunt was to determine the educational relevance of the change model and to ascertain whether stage-similar classroom groupings of students would differ from each other along the lines hypothesized and therefore presumably would respond favorably to a specific kind of educational environment which would enhance their current functioning, although it would not encourage progressive development.

The sample of students for the exploratory study consisted of 147 ninth graders from culturally deprived backgrounds. On the basis of a battery of system-relevant measures they were divided into 3 classroom-size groupings homogeneous as to stage of conceptual development as follows: a 20 member Sub 1 group with a mean IQ of 87, a 24 member Stage 1 group with a mean IQ of 96, and a 23 member Stage 11 group with a mean IQ of 95. To allow for observation of the 3 groups under the same conditions, each was assigned for 6 weeks of daily periods to the same English teacher, the same social studies teacher, and the same science teacher. The groups were rated on several scales by a team of eight observers and by the three teachers involved, none of whom were aware of the basis for the homogeneous groupings. Dimensions on which the ratings were based included academic motivation, achievement, competitiveness, spontaneity, openness to information, etc. Reliability of observations was indicated by the complete agreement between pooled observer and pooled teacher rankings on the dimensions investigated.

A brief review of the hypothesized and observed characteristics of the three levels of conceptual orientation is of interest due to its relevance to the present study. It was hypothesized that the typical student in the Sub 1 stage of conceptual development would have failed to learn "the ground rules" of social order, perhaps due to a defect in the parent-child relationship, and although attempting to become independent could not be able to distinguish himself from the generalized standard since he had never proceeded through the Stage 1 incorporation of that standard. This failure would predispose to "concrete negativism" and a generalized uncontrolled hostility. Defective socialization leading to failure to develop adequate controls would also result in a need for immediate impulse gratification and immature and unsatisfactory interpersonal relationships. Observed characteristics included high noise level and interfering activities, short attention span, teacher difficulty in disciplining, and easy student distractibility. However, there is no indication as to what part the variable of IQ (this group having a mean IQ of only 87) had in determining the behavior of this group.

The Stage 1 adolescent was expected to be so inflexibly concrete that any sort of adaptability to change would be most unlikely. He would be most comfortable in conforming to an absolute standard of right and wrong prescribed by his culture. Reactions to status and authority would dictate his interpersonal relationshps rather than any empathic understanding of the needs or feelings of others. This group, as had been expected, showed the strongest tendency to over-achievement, to competitiveness, and to dependence on the approval of others.

Students in the Stage 11 group were expected to have progressed to a level of "negative independence" as a result of the earlier incorporation of the generalized standard. It was hypothesized that the more abstract level of functioning would allow for the consideration of alternative modes of reacting to situations and for the differentiation between self and an undifferentiated other. This group was observed to evidence the highest degree of spontaneity and the least dependence on the teacher. Unexpectedly, students in this group were seen to be less open to information than those in the Stage 1 group.

All of the above hypotheses were confirmed by the data.

Although difference in teaching style and teacher personality was not one of the variables in this exploratory study, Hunt comments on the clearly observable differential effect of two of the teachers, one being very much more effective in her interaction with the Stage 1 group, the other with the Stage 11 group. Unfortunately for our purposes, Hunt does not analyze the possible causative factors behind this differential effect.

G. Literature Relevant to the Measurement of Teaching Style

Having defined the concepts and described specific teacher behaviors or attitudes which in combination with other behaviors or attitudes can be considered indicative of the broader patterns of directive or non-directive teaching, the problem became how to differentiate teachers on the basis of these variables. Such differentiation was called for by the first objective of the study and a necessary prerequisite to testing the hypotheses of the study. Various media and methods have been employed for this purpose. Underlying such important attempts to measure teacher behavior as those of Thelen (1951), Withall (1949), Medley & Mitzel (1958), and Amidon & Flanders (1963), is the basic assumption that it is necessary to study classroom behavior in the classroom. In addition, these researchers have hypothesized that what the teacher does is an important factor in determining what the pupil learns, that any affect the teacher has on pupils is mediated by some observable overt behavior, and that teacher-pupil interaction patterns affect the student at subconscious levels and influence pupil-pupil interaction as well.

Video taping, narrative or descriptive accounts, pupil reaction inventories, behavior or sign counts, rating scales, and frequency count methods all must begin with direct classroom observation. Each has advantages and drawbacks, serving some purposes better than others. Detailed narrative accounts (often recorded simultaneously and later synchronized by two or more classroom observers each concentrating on different aspects of classroom behavior) have been employed by Thomas (1929), Lewin, Lippitt & White (1939), Wispe (1951), and Shapiro (1963), to deal with large samples of classroom behavior. The narrative technique obviously necessitates evaluation or rating following observation since in all the studies cited the account was meant to be more than descriptive.

Medley & Mitzel (1963a) have suggested that the video taping of class sessions is especially useful for teacher training purposes, since, in addition to intruding a less distracting element than a human observer into the classroom, video tape provides the obvious advantage of play-back, permitting the student-teacher to see himself in action. Teacher education and the facilitation of self-analysis of teacher performance have also been the objectives which determined the form of the Amidon & Flanders (1963) Categorizations System for the Analysis of Teacher-Pupil Interaction, the Medley & Mitzel OscAr Technique (Medley, 1963; Medley, Impelliteri, & Smith; Medley & Mitzel, 1963a,b) and the Perkins (1964) procedure for analyzing classroom behavior. As didactic devices there may be some justification for the elaborate time sampling, matrixes, and scoring requiring highly trained observers and countless hours of classroom observation. However, justification on the grounds of the requirements of modern science for quantification is questionable since at some point value judgments must be made as to what each of the carefully counted behaviors means and how it interacts with the other variables in the situation.

Another system of observation notes the appearances of "signs" or specific behaviors considered symptomatic or representative of other behaviors not recorded. Each sign is checked once for each period in which it is observed one or more times. This technique was originally employed by Cornell, Lindval, & Saupe (1952) and adapted by Medley & Mitzel (1958) for use in conjunction with other items. Medley & Mitzel's observation and scoring procedure "involves a combination of several items which correlate with one another in a composite scale which is more reliable and interpretable than any individual item" (Medley and Mitzel, 1963a, p. 268).

Despite the claims of objectivity and scientific approach advanced by the proponents of the quantification methods, observer ratings as an approach to the measurement of teacher variables has been used more widely, perhaps, than any other method. Remmers (1963) in an article on rating methods in the Handbook of Research on Teaching points out that the reason for this popularity is easily understood. He suggests that (1963; p. 329)

> "Many of the variables in research on teaching are so complex that tests, questions, and objec-

> tive behavior records are either inadequate or too inconvenient. Sometimes we need what only a recording instrument as sensitive, complex, and alert as a human observer can tell us about the behavior characteristics of a person or object, and then we turn to the methods of recording and communicating such messages called rating scales."

The rater may be a pupil, answering "yes" or "no" to a list of questions describing student behavior in his classroom or his own attitude toward the teacher or classroom procedures (Medley & Klein, 1957; Christensen, 1960; Cogan, 1954) or choosing one of several descriptive categories which best describes his reaction to questions concerning teacher behavior (Purdue Rating Scale for Instruction, Solomon, 1966).

Although raters and rating scales have often been used to evaluate teachers and teaching methods, we are mainly concerned with their use as instruments of objective measurement of specific teacher behaviors. An example of a numerical rating scale using bi-polar terminal verbal anchors is the Classroom Observation Record developed in Ryans' (1960) extensive research project on teacher characteristics. McGee (1955) used a classroom observation record similar to Ryans' to correlate overt classroom behavior and scores on the F-scale, each item on the McGee scale being chosen for appropriateness to the authoritarian syndrome. Jensen (1955) analyzed the social structure of a classroom on a rating scale employing seven different dimensions, and Zimiles et. al. (1964) evaluated teaching performance based on ratings along seventeen dimensions of classderoom activity. Wispe (1951) also made use of raters to determine to what extent selected instructors were adherring to the directive or permissive method of teaching. Heil, Powell, & Feifer (1960) employed a teacher observation scale also modeled on the Ryan observation record, to obtain evidence of teacher characteristics and role, and childrens behavior. Finding a negligible correlation between childrens' achievement and observers' ratings of teacher effectiveness, they concluded that "observer ratings, per se, are next to worthless" (p. 66). However, the problem would appear to be not so much one of method but of the particular rating instrument which they had devised. Since they were attempting to measure a global concept rather than concrete and specific behaviors, their rating dimensions were conceptualized in the most abstract of terms such as democratic vs. autocratic, objective vs. subjective, responsive vs. aloof, and effective-appropriate vs. ineffective-inappropriate. In addition to the difficulties inherent in rating on such broad dimensions was the problem that they were using a highly idealized concept of teacher behavior to measure effectiveness which might evidence itself more often in behaviors tailored to the realistic and pragmatic demands of a particular teaching situation.

H. Techniques Employed for Measuring Teacher Style

As mentioned previously the first objective of this study was to validate a practical measure of teacher directiveness that could then be used in testing the hypotheses of the study. The first phase of the project was devoted to this psychometric objective, including both the development of appropriate instruments and the validation of the prime measure. The term "practical" refers to a measure that could be administered in simple fashion and from which the teaching style of a large number of teachers could be determined. Indeed, this emphasis on practicality was the deciding factor in the ultimate choice of a student measure as a means of obtaining a description of teacher behavior. A Student Inventory is considered particularly appropriate since large numbers of teachers can be measured without the utilization of research assistants, research investigators, or trained observers. Brookover's study (in Withall & Lewis, 1963) was one of the first to employ a student inventory to assess teacher-pupil interaction. A nine item multiple-choice scale "appears to have measured the pupils' impression of the pleasantness of his relationships to his teachers." More recently, student inventories have been used by Cogan (1954) and Christensen (1960), in their attempts to measure teacher behavior and its effect on student achievement. Typically, however, student questionnaires have been developed as evaluative devices in the determination of teacher effectiveness (Coffman, 1954; Remmers, 1963; Solomon, 1966).

In addition to practicality, the student rating approach has other important advantages. Among these are the fact that there is no necessity for training raters. Individual rater differences are overcome by using a reasonably large number of raters (approximately 20 per class) and then averaging across raters. This would have the effect of cancelling out errors due to chance variation. Of equal importance is the fact that rating scales of this type are relatively easy to construct and, as previously mentioned, to administer. Processing the data obtained by them is also relatively easy since the scale construction allows for computer analysis. Moreover, the rating scale has the properties of an ordinal scale and according to some investigators (Mechels and Helson, 1949), it has the properties of interval and ratio scales (Remmers, 1963). This indicates that the data secured through the student questionnaire can be validly analyzed using powerful parametric statistical techniques. It might also be mentioned that the student rating scale is probably the only instrument available for measuring those behaviors considered in this study, at least at the present stage of research development.

There are, of course, certain disadvantages associated with the use of student ratings as a measure of teacher behavior which must be considered. Certain constant errors, such as halo, generosity, and contrast errors, produce distorted ratings. Halo refers to the tendency of a rater to react in terms of overall feelings and to overgeneralize across rating categories based on positive or negative feelings toward the object being rated. Generosity specifically refers to positive halo effect and the tendency to give higher ratings than is warranted by the behavior. Contrast refers to a tendency by the rater to rate the object relative to one self. These constant errors can be compensated for in part by using descriptive rather than evaluative rating categories, by the use of more than one rater, and by the use of concrete illustrations incorporated into the rating measure. These techniques were employed in the present study.

Other problems to be considered when rating scales are utilized accrue from the sophistication or lack of sophistication of the judges and the kind of judgments they are requested to make. Particular difficulty and lack of reliability obtains when they are asked to judge inner versus outer characteristics of the object being rated. The rating task becomes increasingly less complex as the behaviors to be rated become more manifest. Remmers (1963) has identified five criteria for judging student rating scales. These are as follows: 1) objectivity, which refers in part to the scale's sensitivity in yielding verifiable and reproducible data as contrasted with the peculiar perceptions of the rater; 2) reliability, which refers to the accuracy with which the scale measures a particular trait; 3) sensitivity, which refers to the scale's discriminative power; 4) relevance, which in this case refers to relevance to the particular construct which is being measured; and 5) utility, referring to the scale's efficiency in generating data of practical usefulness. Criteria 1 and 3 can be dealt with through a validity study. Item 2 can be dealt with using three methods of reliability assessment as will be described below. Items 4 and 5 are determined by the techniques actually used to construct the scale. These five criteria will be referred to in the evaluation of the measure used.

The first objective of this study prior to testing the hypotheses was an attempt to demonstrate the validity and reliability of student rating scale which was to be developed specifically for the purposes of this study. That a rating scale filled out by students provides one with an accurate description of teacher behavior has been fairly well established by a number of studies. Getzels and Jackson (1963) cite Leeds (1950) who, in his attempt to validate the Minnesota Teacher Attitude Inventory, administered a 50-item "My Teacher" questionnaire to pupils in Grades 4-6. It was found that a significant positive correlation existed between the pupils' ratings and the teachers' scores on the MTAI. Interestingly enough, correlations of the same order of magnitude were computed for principals' ratings and observer ratings. Construct validity for a pupil rating scale has also been supported by Della Piana and Gage's (1955) study of the relationship between pupils' values and teachers' scores on the Minnesota Teacher Attitude Inventory. Solomon (1966) used three instruments to measure teacher behavior. First, observers made global ratings of the teacher's behavior at the end of two class sessions based on tape recordings. The second instrument was a questionnaire in which the teachers were requested to describe their motives and objectives in teaching the course. Last, a questionnaire was provided the students at the end of a semester. Solomon found "moderate to high across-instrument correlations." The revised student questionnaire, consisting of 69 items dealing with a wide variety of teacher behaviors and three items requiring the student to evaluate the teacher's performance, was subsequently employed alone to measure teacher behavior. Solomon's studies support the contention of Medley and Klein (1957) that "pupil questionnaires can yield information, not only about pupils' feelings for the teacher, but also about what actually happens in the classroom" (p. 318f). It is clearly seen that student questionnaires are valid to the extent that they agree with other techniques of behavior assessment.

Of equal importance, however, is the reliability of student rating scales. For the most part, reliability coefficients have been found to be quite high. Christensen (1960) estimated reliability coefficients for his Permissive Scale and his Warmth Scale to be .94 and .91, respectively. Cook & Leeds (1947) found that the pupil rating scale used in his study measured attitudes "with a reliability approaching .90" and concluded that "pupil ratings of teachers at the intermediate level are reliable and valid." Remmers (1963) also takes the position that rating scales are "useful, convenient, reliable, and valid." Cogan's (1954) main objective was to objectively measure certain aspects of teacher behavior in the classroom. To this end, he relied upon the reports of pupils as the most important source of data, and consequently employed a pupil survey as the major assessment instrument in the study. Of paramount concern was Cogan's finding that his "Pupil Survey" allowed the eighth grade students of five departmentalized junior high schools to make accurate ratings of their 33 teachers' classroom behavior." The reliability coefficients for the average group scores on each of the (survey's) five scales ranged from .89 to .96. Thus, the usefulness and reliability of student questionnaires as measuring devices of classroom behavior has been substantiated. However, certain errors (halo generosity and contrast) may play an important role in obtaining an accurate and real picture of the teachers classroom behavior. Appropriate steps were taken to ensure the construction of an efficient rating scale which allowed the students themselves to be the instrument used for measuring one of the independent variables of the study, namely, relative teacher directiveness.

The student rating measure of teacher directiveness employed in this study (and described in the Method section) was designed specifically for this study. Some of the reasons for developing a unique measure rather than taking those used by investigators such as Christensen and Solomon was that their measures did not conform completely to the operational definition of teacher directiveness called for in this study. Also their measures were used for students in different age groups or in a setting outside the vocational school context. Frequently, the items used in their scales seemed to be more evaluative than seemed desirable and may have included vocabulary that seemed inappropriate. These scales also tended to be considerably less uni-dimensional than would be desirable here. Typical of this problem was the compounding of the coldness-warmth dimension with the teaching style dimension leading to the inevitable evaluative position that directive teachers were more cold and consequently more aloof than non-directiveness teachers, a conclusion which did not seem necessarily justified.

In keeping with the operational definition of teacher directiveness described above, a new rating scale was conceived of as being separated conceptually into two major categories; the first category was structure, which referred to the manner in which the teacher ran the classroom and set up ~~the~~ learning situations. Second, was the interpersonal category which referred to the way the teacher related to the students as a person. Within the structure area the following five characteristics indicative of directive teaching were included in the rating measure: 1) engaging in formal planning and structuring; 2) minimizing informal work and group work; 3) structuring group activity when it is used; 4) structuring classroom and individual activity such that breaks in the pattern were resisted; 5) requiring factual knowledge from the students based on formal lecture or textbook material. In the interpersonal area the following five characteristics were identified in the rating scale as characteristic of directive teachers: 1) punishment is absolute and justified on the grounds of school regulations or moral obligation; 2) opportunity for making mistakes is minimized; 3) a formal classroom atmosphere is maintained; 4) a formal relationship with students in maintained; 5) absolute responsibility for grades is retained.

In order to validate the student rating scale of teacher directiveness it was deemed appropriate to either borrow or develop another measure of teacher directiveness for which a greater degree of validity could be assumed. To this end, an observer rating scale was constructed utilizing the operational definition of teacher directiveness and those specific categories listed above. The assumption that an observer rating scale is the most suitable instrument to use to validate the student questionnaire is based upon the findings of numerous investigators who have established the practical utility of such a scale. Gurman & Bass (1961) did a study in which they sought to determine the relationship between subjective (observer ratings) and objective (computer analyzed) assessments of group behavior. The two different methods of measurement tended to produce similar pictures of the group behavior. The agreement, "not accounted for by mutual correlations with irrelevancies," suggested that both objective and subjective measurements were concerned with related constructs. The investigators concluded that observer ratings are most appropriate for studying "overt events." The studies mentioned previously which were undertaken by Thomas, et. al. (1929), Withall (1949, 1951), Amidon & Flanders (1963) and Thelen's group (1951) support the position that observers are able to measure the behavior of teachers and students in the classroom with a high degree of reliability. The validation studies of Thelen et. al. and Withall are particularly noteworthy.

An observer rating scale was adopted for establishing the validity of the student measure in preference to various coding schemes because of its greater simplicity and practicality in use. Considerably less training of observers is required, while greater reliability could be expected. The fact that the observer rating scale is based on the operational definition and the specific categories cited above would provide a conceptual similarity between the student rating measure and the observer rating measure and would lend itself to the determination of comparability between student judgments and the judgments of trained observers.

CHAPTER II

METHOD

A. Methodology for Phase I: The Psychometric Study

1. Development of Instruments

Having defined the appropriate concepts and isolated specific teacher behaviors which alone or in combination could be considered indicative of the broader patterns of directive or non-directive teaching, the problem was to construct some reliable and valid means of objectively comparing, rating, or ranking teachers on these significant behaviors. A measure was sought which could provide a description of teacher behavior as accurately and efficiently as possible. The literature (as previously reviewed) pointed to the selection of a student-scored measure of teacher directiveness. Such practical considerations as the fact that its use would obviate the training and intrusion of observers into a classroom, that the use of a whole class of students (approximately 20 per class) would overcome by virtue of numbers individual rater differences and errors due to chance variation, further strengthened this inclination.

A student questionnaire containing 32 items, each describing a facet of classroom behavior common to "all" classrooms was generated after the review of the literature and classroom observations. The Student Perception of Teacher Style (SPOTS) is a rating scale requiring the students to rate the intensity or frequency of particular teacher behaviors on nine point rating scales. Anchor phrases on these scales are, e.g., "The teacher plans all class projects" (directive) versus "The students get together and decide what project the class should undertake" (non-directive approach). Scale items were built around the operational definition of teacher directiveness specified below:

Structure

1) formal planning and structuring of the course
2) minimization of informal work or small group work
3) structuring of such small group work as is employed

4) relatively rigid structuring of individual and class activity
5) emphasis on factual knowledge based on absolute sources

Interpersonal

1) use of absolute and justifiable punishment
2) minimization of the opportunity to make and to learn from mistakes
3) maintenance of a formal classroom atmosphere
4) maintenance of a formal relationship with students
5) assumption of total responsibility for grades

The factor make-up and the reliability of the SPOTS will be discussed in a later section. (The original 32 item SPOTS appears in Appendix A.).

Despite the many indications (Cogan, 1954; Christensen, 1960) that students questionnaires are reliable and valid instruments with which to measure teacher behavior, it was decided that trained observers should make observations of the teachers of the classes in which the SPOTS was administered and rate these teachers independently on teacher directiveness to test the validity of the SPOTS. Two scales were developed for this purpose. The Observer Rating Scale (ORS), containing 19 items requiring trained observers to rate teacher behaviors on nine point scales, is the observer counterpart of the SPOTS. (This scale appears in Appendix B.). The 19 items fall into five categories: 1) Structuring, 2) Interaction, 3) Climate, 4) Teacher-Talk and 5) Class Discussion. A majority of the items deal with the degree to which a teacher uses either traditional, absolute or rigid control in the classroom as opposed to the degree to which he uses relativistic, student-activated techniques for controlling the classroom climate.

In addition to the ORS, the Teacher Style Checklist (TSC) was developed using items derived directly from the literature. (This scale appears in Appendix C.). This scale requires trained observers to make one of three judgments: (a) the directive pattern present in the classroom; (b) the corresponding non-directive pattern of behavior present in the classroom; (c) the fact that no judgment can be made on the basis of observation.

The number of non-directive traits marked present on the TSC was divided by the number of non-directive plus directive traits marked present, to provide a percentage teaching style score. The TSC provided the observer with the advantage of speed and efficiency. It also allowed the observer to categorize a behavior immediately. However, the very advantages of the "sign" technique are also its disadvantages. While the TSC had to be scored in either one of three ways, the ORS, could be scored on any of nine levels, thereby enhancing the sensitivity of the scale and allowing the rater to make more fine discriminations among the behaviors of teachers.

2. Collection of Data

Extensive work was done in two cooperating vocational-technical high schools. In school A, 10 instructors and their classes participated; in school B, 12 instructors and their classes participated. The distribution of these instructors by subject is shown in Table 1.

Two trained observers observed each cooperating teacher for a full class period. Each observer completed an independent set of ratings on the ORS and on the TSC. For analysis purposes, the two independent judgments on each measure were averaged, and will be referred to as ORS_1 and TSC_1. In addition, the two observers then completed the TSC cooperatively, arriving at a third set, or consensus judgment. This will be referred to as TSC_2.

Following the collection of all observational data, the observers returned on a separate occasion and administered the SPOTS to the students of each cooperating teacher, a total of 363 students in 22 classrooms. At the same time, the instructors completed the Interpersonal Topical Inventory (ITI) developed by Tuckman (1965, 1966a). This instrument is a forced-choice measure of an individual's personality structure in terms of the four systems of cognitive complexity and independence-orientation described in a previous section. Previous studies (Tuckman 1966a; 1966b; 1967a) provide evidence of the validity of the ITI as a measure of the systems.

The ITI is the instrument which was also administered to students (during Phase II) to determine their personality orientation. It was included in the teacher battery since Joyce and Hunt (1966) & Harvey et. al. (1966) have shown that teachers of high complexity (abstract teachers) tend to exhibit fewer directive behaviors than teachers of low complexity (concrete teachers). Thus, the ITI was included to help determine the validity of the three measures of teacher directiveness.

Each teacher received a total of seven scores for the battery as follows:

Table 1

Distribution of Cooperating Teachers in Phase I by Subject Taught

Subject Taught	No. of Teachers	From School A	From School B	No. of Students
Science and Math	5	3	2	92
English	2	2	0	56
History	2	1	1	39
Related Science (Beauty Culture)	1	0	1	10
Total Non-Vocational	10	6	4	197
Auto Mechanics	2	1	1	34
Auto Body	1	0	1	12
Drafting	2	1	1	32
Electrician	1	1	0	19
Plumbing	1	1	0	12
Welding	1	0	1	11
Commercial Art	1	0	1	17
Horticulture	1	0	1	12
Steam Engineering	1	0	1	7
Masonry	1	0	1	10
Total Vocational	12	4	8	166
Grand Total	22	10	12	363

(1) SPOTS $\bar{X}$: an average across all 32 items on the SPOTS and across all student judges in that class yielding a single score.

(2) ORS_1: an average of the two sets of independent observer judgments on the ORS.

(3) ORS_2: a score obtained by selecting the ORS score for each teacher as the one from the observer whose judgment most closely approximated that teachers SPOTS $\bar{X}$; thus, it was an estimate of best fit between the ORS and SPOTS.

(4) TSC_1: an average of the two sets of independent observer judgments on the TSC.

(5) TSC_2: the consensus judgment of observers on the TSC.

(6) SI: score on the System I (concreteness-dependence) scale of the ITI.

(7) SIV: score on the System IV (abstractness-independence) scale of the ITI.

Measures (1) through (5) were computed so that the higher the score, the more non-directive the teacher. Thus, positive intercorrelations were expected among the five measures. A positive correlation was also expected between measures (1) through (5) and measure (7), while a negative correlation was expected between measures (1) through (5) and measure (6). That is, System 1 teachers were expected to be directive and System IV teachers non-directive.

Individual item scores on the SPOTS were retained for purposes of completing an item analysis and factor analysis on this measure.

Additional manipulations were done to determine reliability of the instruments (see Results section). All comparisons were made using the Pearson product-moment correlation coefficient.

B. Methodology for Phase II: Testing the Hypotheses

1. Selection of Teachers: Directive vs. Non-Directive

Within the two participating schools, 40 male teachers were tested, 13 from school A and 27 from school B.

Each of these teachers were scored for directiveness by having their students complete the Revised SPOTS. The Revised SPOTS is a 17 item version of the original 32 item SPOTS. Those 17 items chosen for inclusion in the Revised SPOTS were determined by the item analysis, factor analysis, and intercorrelations reported in the next chapter under the results of Phase I. Based on these analyses, it was possible to select the most valid, reliable, and factorially "pure" items from the original 32 to form a more compact and psychometrically-sound instrument which students could use to report the directiveness of their teachers.

From among the 40 teachers whose students completed the Revised SPOTS, 24 were chosen for inclusion in the study, 12 of which taught SHOP courses (i.e., vocational teachers) and 12 of which taught NON-SHOP courses (i.e., non-vocational teachers). These teachers, their subject, school, and revised SPOTS score are listed in Table 2. Half of the shop and half of the non-shop teachers were assigned to the DIRECTIVE group and half to the NON-DIRECTIVE group based on their Revised SPOTS scores. Teachers scoring one-half deviation more (or less) on the SPOTS than the mean for all other vocational (or non-vocational) teachers were included. The 12 teachers classified as non-directive had a mean SPOTS score of 5.54 compared to 4.36 for the directive teachers, a difference significant at the .05 level (t=2.15, df=22.) Moreover, for SHOP teachers the mean SPOTS score of 5.98 for the non-directive group significantly exceeded that of 4.98 for the directive group (t=9.09, df=10, $p < .01$). Similarly, for NON-SHOP teachers the mean SPOTS score for non-directive teachers (5.11) significantly exceeded that for directive teachers (4.12; t=7.33, df=10, $p < .01$). (The SPOTS is written so that the higher the score, the more non-directive the teacher.) Thus, the distinction between the groups classified as directive and non-directive was clear-cut and had no overlap based on the classification instrument, the Revised SPOTS.

2. Selection of Students

514 male students participated in the study as subjects (in addition to providing the ratings by which teachers were classified). Approximately one-third of these students were in school A and two-thirds in school B. All were in their junior or senior years (11th or 12th grade) and each was pursuing an occupational major in the areas of auto mechanics, auto body, carpentry, electrician, printing, masonry, welding, drafting, or commercial art.

Table 2

Assignment of Teachers in Phase II to Conditions*

Vocational Teachers			Non-Vocational Teachers		
			NON-DIRECTIVE ORIENTATION		
Vocational	School	Average Revised SPOTS score	Non-Vocational	School	Average Revised SPOTS score
Auto mechanic	B	5.50	History	B	5.49
Drafting	B	6.30	Science	B	5.21
Stationary Engineer	B	5.72	Math	A	5.85
Carpentry	B	5.50	English	A	4.89
Comm. Art	B	6.29	History	B	5.08
Electrician	A	6.38	Soc. Studies	B	5.34
Overall		5.98	Overall		5.11
			DIRECTIVE ORIENTATION		
Printing	B	3.83	Math	B	3.75
Carpentry	B	4.78	Math	B	4.15
Printing	B	4.50	Soc. Studies	A	4.23
Auto Body	B	4.50	Science	A	4.70**
Welding	B	4.60	Soc. Studies	A	3.83
Masonry	B	4.80	English	A	4.66**
Overall		4.98	Overall		4.12

*The determination of the directive or non-directive orientation of teachers was based on the average SPOTS score obtained by each teacher. Any teacher whose score was ½ a standard deviation (or more) less than the mean SPOTS score for all teachers in his respective group (vocational or non-vocational) was assigned to a directive category; any teacher whose score was ½ a standard deviation greater than the mean was assigned to the non-directive category.

**SPOTS scores were within ± ½ S.D., but scores on two observer rating scales and scores on ITI indicated directive-orientation.

3. Student Data Collection of the Independent Measures

The battery of measures for the student subjects included the following:

(1) Interpersonal Topical Inventory (ITI). This is a forced-choice personality measure which yields four scores for each student, one in each of the four personality systems described in the first chapter. (A copy of the ITI appears in Appendix D and the scoring key in Appendix E.) System IV is the abstract-indpendence dimension of the ITI. Persons scoring high are oriented toward unrestricted choice and information processing and low scores the reverse. That is high scores are abstract-independent and low scores not abstract, not independent or neither abstract nor independent. Ss were classified as high or low IV by splitting the scores at the median.

(2) F-Scale. This measure, developed by Adorno, et. al. (1950), identifies the extent to which a person has an authoritarian personality. (A copy of the F-scale, labelled Opinion Survey #1 appears in Appendix F.) Authoritarians prefer structure and regimentation and attempt to avoid ambiguity. Ss were classified as high or low F by splitting the scores at the median.

Thus, there were two different personality measures,[2] each of which represented slightly different ways of measuring the extent to which a student was directive or non-directive oriented. Each of these measures was introduced separately into the analyses as the independent variable describing the student's orientation. This will be described more fully under Design and Analyses.

All of the 514 Ss did not complete both the ITI and F-Scale because of scheduling difficulties. For that reason, analyses involving each measure used a different N. Ss not taking a particular test, were dropped from any analysis utilizing that test.

4. Student Data Collection of the Dependent Measures

Data on the following three dependent measures was collected two weeks before the end of the school year:

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[2] In fact, other personality measures were derived and analyzed but omitted because they added nothing to the presentation.

(a) Course satisfaction - A Satisfaction Scale (see Appendix H) containing eight 5-point rating scales was administered. The scale measured the subjective feelings the student had about a course and teacher. All items were written in the same direction and the lower the score the higher the satisfaction. An attempt was made to have each participating student complete this measure for each course he had taken that year. Again, time and scheduling made it impossible for this to be done completely.

(b) Teacher Preference - At the bottom of the Satisfaction Scale (Appendix H) was a place provided for the student to list all the teachers he had had that year in order of preference. A teacher given the highest rank was given a score of 1; the second ranked received a score of 2; all others received a score of 3.

(c) Course Grade - An attempt was made to obtain the grades of each participating student in each course he had taken. Grades ranged from 1 (the highest) to 5 (the lowest). Again, school records were not as yet completed and all grades could not be obtained.

5. Design and Analyses

Because every student did not participate exactly twice in the study, once for a vocational subject and once for a non-vocational subject, it was impossible to use a repeated measures design. Instead, separate analyses were undertaken for vocational courses and non-vocational courses.

The design of the study appears in Figures 2a and 2b. The following 15 two-way analyses of variance were undertaken:

- 3 runs: Dir Voc - Non Dir Voc x High-Low System IV for the 3 dependent measures
- 3 runs: Dir Non Voc - Non Dir Non Voc x High-Low System IV for the 3 dependent measures
- 3 runs: Dir Voc - Non Dir Voc x High-Low F for the 3 dependent measures
- 3 runs: Dir Non Voc - Non Dir Non Voc x High-Low F for the 3 dependent measures
- 3 runs: Dir-Non Dir x Voc - Non Voc for the 3 dependent measures

Figure 2a. Design of the Data Analyses

		Vocational Teachers*	
First Analysis	Second ** Analysis	Directive	Non-directive
2. low System IV (Directive)	3. high F		
2. high System IV (non-directive)	3. low F		

		Non-Vocational Teachers*	
		Directive	Non-directive
2. low System IV (Directive)	3. high F		
2. high System IV (non-directive)	3. low F		

* The dependent measures included:

(1) course satisfaction
(2) teacher preference
(3) course grades

** Each of the personality measures was used for a separate set of analyses

Figure 2b. Design (continued)

	Directive	Non-directive
Vocational Teachers	*	
Non-Vocational Teachers		

*The dependent measures included:

(1) course satisfaction

(2) teacher preference

(3) course grades

The coding scheme used for key punching the data appears in Appendix I. As can be seen, more data was rostered than can be analyzed now. Further mining of the data is possible.

Each of the above analyses had a different N. The size of the N was based on wehther S completed the personality measure and dependent measure being used in the analysis. Overall, 273 students provided data on vocational subjects and 514 on non-vocational subjects. However, all the members of either group did not complete both of the personality and all the dependent measures. All analyses of variance followed the approach set forth by Winer (1962).

CHAPTER III

RESULTS

A. Results of Phase I: The Psychometric Study

1. Reliability of the SPOTS

The objective of the correlational study was to determine the reliability and validity of the SPOTS scale and to establish its utility as a measure of teacher directiveness. Before subjecting the SPOTS scores of 363 students in 12 shop classes and 10 non-shop classes to a computerized correlation analysis (on an IBM 7040 computer), the individual SPOTS questionnaires were examined for items which were so ambiguous or inappropriate that the majority of the 363 subjects rejected them. It was found that three items, numbers 19, 20, and 21 respectively, thought originally to provide an index of directive behavior in the shop situation, could not be retained without destroying the integrity of the scale. Therefore, these three items were excluded from all later computations. The correlation analysis thus included 32 of the original 35 items, plus the average SPOTS score for each of the 22 teachers.

Two types of reliability measures on the SPOTS were considered: one a measure of internal consistency, the other a measure of interjudge reliability (the judges being the students).

The internal consistency of the scale was established by correlating the mean SPOTS score of each of the 32 items for each of the 22 teachers with the grand mean SPOTS score for each teacher. The results of the analysis indicates that 78% of the item scores were significantly related to the total SPOTS score ($r < .40$). Of this 78%, 88% of the items correlated above .50, while 64% correlated above .60. Put another way, the average scores on 25 of the 32 items were consistent with the grand mean for each teacher. Significant correlations among these items ranged from .45 to .91. Essentially then the SPOTS, after seven items are deleted appears to be a highly internally consistent measure. Correlations between the items and total score on the SPOTS appears in Table 3.

That the SPOTS scale is reliable across judges is indi-

Table 3

Relationships Between Each SPOTS Item and the Mean SPOTS for Each Teacher, Observer Ratings, Personality Systems and Loading on Factor 1

SPOTS ITEM	SPOTS $\bar{X}$	ORS$_2$ *	SI	SIV	TSC$_2$ **	LOADING FACT 1	Item No. on Revised SPOTS
1	.58					.21	
2	.85					.68	1
3	.63	.40				.54	2
4	.61					.91	3
5	.57					.48	4
6	.35					.31	
7	.39					.11	
8	.53	.41	.53			.08	5
9	.68					.69	6
10	.54					.30	7
11	.68			.48	.48	.84	8
12	.52		.43			.10	9
13	.69	.47				.52	10
14	.26	.54				.00	
15	.91	.40				.57	11
16	.57					.29	
17	.73					.66	12
18	.80					.76	13
19	.64	.46				.41	14
20	.64					.16	
21	.09					.24	
22	.70					.08	
23	.27	.53				.04	
24	.47	.57		.49		.01	15
25	.80	.41				.42	10 ‡
26	.63	.41				.27	
27	.45			.41	.52	.22	16
28	.76	.49				.36	17
29	.68	.47				.21	
30	.48					.06	
31	.35	.53				.04	
32	.18			.49	.46	.04	

* ORS$_2$ = Best Judgment, Observer Rating Scale
** TSC$_2$ = Consensus, Teacher Style Checklist

‡ Items 13 & 15 were essentially duplicates and were merged to form one item

Note: insignificant correlations in columns 2-5 have been omitted cated by an examination of inter-judge reliability undertaken to determine the degree to which the students within each class agree with the average class SPOTS directiveness rating for each teacher. This was accomplished by ranking each student according to the agreement of his SPOTS rating with the mean SPOTS rating for each teacher and correlating these "agreement ratings" with the average SPOTS score for each teacher. For example, students whose SPOTS rating was closest to the average class rating for a particular teacher were assigned the rank of "1"; those whose SPOTS rating was second closest to the class' average SPOTS rating were assigned the rank of "2", and so on. Ranks were likewise assigned to every student in each of the 22 classes. The SPOTS rating of all students ranked "1" were then correlated with the class' average SPOTS score for each teacher. This procedure was followed with all students of a given rank in a given classroom.

The resultant correlation coefficients were indices of inter-judge agreement on the degree of directiveness manifested by a given teacher. As seen in Table 4 the ratings of those students whose ranks fell between 1 and 4 correlated on an average of .95 with the class ratings, while the ratings of students ranked 5 through 8 correlated on an average of .84 with the class' mean SPOTS rating for each teacher. The correlations between the SPOTS ratings of students ranked ninth and tenth and the average class rating were .77 and .69, respectively. The scores of students below the tenth rank did not show high agreement with class average for the teacher. Thus, it is clearly seen that the inter-judge reliability holds up strongly through the tenth rank-deviation from the mean class average for each teacher rated for directiveness on the SPOTS. In essence, these figures show that there is relatively little rank variability among the SPOTS scores of students within each class.

2. Reliability of the Observer Scales

While the high reliability of the SPOTS was demonstrated by measuring the internal consistency of the scale and the inter-judge agreement with class averages, the reliability of the two observer rating instruments, the ORS and TSC, depended primarily on the ability of two trained observers to agree on the degree of directiveness manifested by the teacher in a classroom or shop situation. The observers rated teachers independently on the two measures, the ORS and the TSC. These ratings were then correlated to establish the level of agreement between the raters. The Observer Rating Scale showed a (inter-rater) corrected reliability coefficient of .81, while the Teacher Style Checklist showed a corrected correlation coefficient of .77. Both coefficients were corrected by the Spearman-Brown formula (Thorndike & Hagen, 1961). It appeared then that there was good agreement between the two observers on their ratings of teacher directiveness based on two individual measures of teaching style. Another interesting measurement, the relationship between the two different rating instruments, indicating to some extent the validity of the instruments, was also obtained. The average rating for each teacher on the ORS, consisting of the mean of the two total ORS scores recorded by the observers (called ORS_1), and the average rating for each teacher on the TSC obtained by finding the mean percentage of non-directive traits in each classroom noted by the two trained observers (called TSC_1), were correlated. The relationship, as indicated by an r=.88, was high and positive. This suggests that, on the average, teachers who received high non-directive ratings on the ORS likewise obtained high non-directive ratings on the TSC. The two instruments, therefore, were not only reliable in that congruent independent judgments were obtained with them, they furthermore appeared to be measuring the same traits, namely, the extent to which a teacher's style is directive or non-directive.

3. Intercorrelations among the Measures - the Validity of the SPOTS

Some of the more important findings of the correlational study are found in Table 5, which presents the interrelationships between the student questionnaire (SPOTS), the Observer ratings (ORS and TSC) and personality (System IV, previously described). An inspection of the table reveals that there was a significant relationship between the average SPOTS ratings for each teacher and the best judgment ratings on the ORS (ORS_2). The .53 correlation coefficient suggests that, given ideal conditions, trained observers can show appreciable agreement with students with regard to the approximate standing of each teacher on the directive-non-directive continuum. The relatively low correlations between the SPOTS means for each teacher and the ORS average scores (ORS_1), and the average and consensus ratings on the TSC (TSC_1, TSC_2) indicated that typically the observers did not perceive teachers the same way the students did. The reasons for this finding will be discussed in a later section of this report. Also noted in the table are the high interrelationships between the four observer rating measures (ORS_1, ORS_2, TSC_1, TSC_2) indicating that these measures may be substituted one for another as alternate measuring devices. It is equally important to consider the significant relationships existing between the average ORS rating (ORS_1) and the consensus TSC rating (TSC_2)

Table 4

Interjudge Reliability Coefficients

STUDENT RANK	r
1 (lease deviant from class mean)	.98
2	.98
3	.94
4	.90
5	.89
6	.85
7	.81
8	.80
9	.77
10 (10th most deviant from class mean)	.69

Table 5

Relationships Between Student Ratings, Observer Ratings, and Personality Structure

	ORS_1	ORS_2	TSC_1	TSC_2	SIV
SPOTS $\bar{X}$	.12	.53**	.31	.15	.01
ORS_1		.76**	.88**	.84**	.50*
ORS_2			.75**	.63**	.40
TSC_1				.95**	.32
TSC_2					.59**
SIV					

ORS_1 - Mean, Observer Rating Scale
ORS_2 - Best Judgment, Observer Rating Scale
TSC1 - Mean, Teacher Style Checklist
TSC_2 - Consensus, Teacher Style Checklist
SIV - System IV, Interpersonal Topical Inventory

* $p < .05$
** $p < .01$

and the System IV personality category, an independent variable in the present study. The ORS_1 rating across teachers correlated .50 with System IV, while the TSC_2 rating correlated .59 with System IV. These coefficients indicated that the greater the degree of non-directiveness of a teacher, as measured by the observer rating scales, the greater the degree of cognitive complexity and independence of that teacher. This finding supports one of the hypotheses derived from theory, namely, that non-directive teachers tend to come from System IV. The converse, that directive teachers fall into the System I category, did not receive confirmation however. The fact that the relationships between teacher style and personality were found only when observers ratings of teachers were used as a measure of teaching style but not when student ratings were employed (the correlation between SPOTS $\bar{X}$ and SIV was .01), will be discussed later.

4. Factor Analysis

Responses to the 32 individual items of the SPOTS rating scale were subjected to factor analysis using a varimax, principal components technique. One strong factor was comprised of 15 SPOTS items, 13 of which were significantly related to the grand mean on the SPOTS.

The factor (Factor 1) consisted of those items which indicated an authoritarian-tradition-orientation of teacher directiveness, including such aspects as "control" (items 3, 13, 15, 19, 28), "absolutism" (2, 9), and "formality" (4, 10, 11, 17, 18). Table 6 presents a brief description of each item in Factor 1 along with the item's factor loading. (Numbers in parentheses are item numbers on the revised SPOTS - see Appendix G). Only those items having a factor loading of .30 or better were included in the table. (See also Table 3).

Six other dimensions of classroom behavior as measured by the SPOTS were factored out. Two of these, containing four items each, revolved about student knowledge vs. teacher knowledge of classroom procedure and student vs. teacher control of projects, respectively. The four other factors, accounting for the majority of the remaining variance, contain three items each and appeared to measure student freedom and student responsibility to speak in various classroom situations.

It should be noted, however, that all seven major factors seemed to measure several closely related dimensions which centered around the formality, absolutism and control of

Table 6

Items Loading on Factor 1

SPOTS Item No.	Description	Loading
2 (1)*	Teacher emphasizes facts vs. thinking for oneself.	.68
3 (2)	Teacher determines activities vs. student choice of activities.	.54
4 (3)	No variation from curriculum vs. willingness to diverge from it.	.91
5 (4)	Teacher controls communications vs. freedom to speak out.	.48
6 (omitted)**		.31
9 (6)	Requires absolute adherence to authority vs. intellectual skepticism.	.69
10 (7)	Rigid and traditional in relationships with class vs. informality in relationships.	.30
11 (8)	No use of humor with class vs. liberal use and encouragement of it.	.84
13 (10)	Rigid control of study and subject matter vs. independence and self-determination.	.52
15 (11)	Rigid control of projects vs. group decisions and control	.57
17 (12)	Teacher allows emotions vs. punishment of such expression.	.66
18 (13)	Rigid in social relations with vs. friendly and informal relations with students.	.76

(over)

Table 6 - continued

SPOTS Item No.		Description	Loading
19	(14)	Student passivity vs. student activity during roll-call.	.41
25	(10 merged with item 13)**	Teacher control over projects vs. independent or group control.	.42
28	(17)	Teacher assignment of work partners vs. individual choice.	.36

*Numbers in parentheses correspond to the numbering system of the revised SPOTS (see Appendix G).

**NOTE: Although item #6 of the SPOTS showed a high loading on Factor 1, it was omitted because it did not correlate significantly with the SPOTS average rating for each teacher. Items #25 and 13 have been included as one item (#10) in the revised SPOTS because they apparently duplicate each other. Items 8, 12, 24, and 27 of the original SPOTS became items 5, 9, 15, and 16 of the Revised SPOTS even though they failed to load on Factor 1 because of their strong relation to one of the other measures.

classroom activities. While it was possible to infer that items loading on Factor 1 represented the three areas of formality, absolutism, and control, the analysis itself only showed that these 15 items represented as pure a measure of directiveness as could be found from the SPOTS items. Whatever it is that these items are measuring (presumably directiveness), it is clear that they are all measuring the same thing, albeit in different ways. Thus, these items form the basis of a "pure" factor measure.

B. Results of Phase II: Testing the Hypotheses

1. Perceptions of Vocational and Non-vocational Teachers (An Ancillary Finding)

In the course of identifying the 24 teachers to be used in the study, SPOTS data (on the revised, 17 item version) was collected from 40 teachers. Mean SPOTS scores for 34 of these teachers, 17 vocational and 17 non-vocational (on whom the greatest number of SPOTS scores were available) were examined to determine if students perceived these two groups as using different teaching styles. For the teachers of vocational subjects, a mean SPOTS score of 5.17 was obtained while for teachers of non-vocational subjects, a mean SPOTS score of 4.65 was obtained. Since the higher the SPOTS score the more non-directive the teacher, this would indicate that vocational teachers were more non-directive (i.e., less directive) than their non-vocational counterparts. (The difference between these means was significant at the .05 level, $t = 2.52$, $df = 33$.) The fact that vocational teachers functioned in both the classroom and shop[3] while non-vocational teachers functioned only in the classroom must be kept in mind in interpreting this finding. Perhaps the shop setting lends itself to the more non-directive style. This finding provides indirect support for this conjecture.

2. Analyses of Variance by Teacher Style and Student Personality

The major hypothesis of this study was that a student's satisfaction with and preference for a teacher, and his grades in that teacher's course, would be jointly a function of the teacher's style and the student's personality. More specifically, abstract students were expected to prefer (and perform better with) non-directive teachers and concrete students to prefer (and perform better with) directive teachers.

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[3] An attempt was made during the first year of the study to have students rate their vocational teachers separately for shop and classroom teaching. Data showed that students could not make this fine a differentiation. Consequently, that approach was abandoned.

To test this hypothesis, 12 analyses of variance were performed, on three dependent variables, for vocational and non-vocational teachers, using two different personality measures. The results of these 12 analyses appear in Tables 7 through 10.

a. *Vocational teachers*. The results for vocational teachers appear in Tables 7 and 8. On the measure of course satisfaction, a significant F ratio ($F = 10.85$, $df = 1,179$, $p < .001$) was obtained for teaching style, when the F-Scale was used as the measure of student personality. On teacher preference, significant F ratios for teaching style were obtained using either the System IV or F-Scale analyses ($F = 4.38$, $df = 1,99$, $p < .05$; $F = 11.33$, $df = 1,176$, $p < .001$ respectively). Moreover, on the System IV analysis, a significant *interaction* between teacher style and personality was obtained ($F = 6.32$, $df - 1,99$, $p < .025$). Finally, on grades only a significant main effect for personality was obtained, when the F-Scale was the personality measure.

Thus out of a possible six, three significant main effects for teaching style were obtained, covering each of the dependent measures except grades. An examination of the means in Table 11 showed that *non-directive vocational teachers were preferred over directive vocational teachers*, and, furthermore, *non-directive vocational teachers generated more course satisfaction than directive vocational teachers.* (All dependent measures were constructed so that the lower the score the greater the favorability. Non-directive vocational teachers received a mean preference ranking of 1.3 while directive vocational teachers received a mean preference ranking of 1.8, for example. All mean comparisons appear in Table 11.)

Among the interactions tested between teacher style and student personality, one significant interaction was obtained. The means on which this interaction was based appear in Table 12a. From this Table, one can see a partial confirmation

Table 7

Analysis of Variance for Students of Vocational Teachers on the Three Dependent Measures by Directiveness of Teacher (A) and Personality of Student on the System IV Measure (B)

SOURCE	Course Satisfaction			Teacher Preference			Grades		
	df	F	P	df	F	P	df	F	P
A (D-ND)	1	0.40	ns	1	4.28	.05	1	0.79	ns
B (Pers.)	1	0.05	ns	1	0.53	ns	1	0.22	ns
AB	1	1.37	ns	1	6.32	.025	1	0.11	ns
Error	100			99			175		

ns not significant ($p > .15$)

Table 8

Analysis of Variance for Students of Vocational Teachers on the Three Dependent Measures by Directiveness of Teacher (A) and Personality of Student on the F-Scale (B)

SOURCE	Course Satisfaction			Teacher Preference			Grades		
	df	F	P	df	F	P	df	F	P
A (D-ND)	1	10.85	.001	1	11.33	.001	1	0.11	ns
B (Pers.)	1	0.34	ns	1	0.46	ns	1	4.15	.05
AB	1	0.78	ns	1	0.64	ns	1	0.44	ns
Error	179			176			186		

ns not significant ($p > .15$)

Table 9

Analysis of Variance for Students of Non-Vocational Teachers on the Three Dependent Measures by Directiveness of Teacher (A) and Personality of Student on the System IV Measure (B)

SOURCE	Course Satisfaction			Teacher Preference			Grades		
	df	F	P	df	F	P	df	F	P
A (D-ND)	1	4.64	.05	1	1.57	ns	1	24.20	.001
B (Pers.)	1	1.40	ns	1	0.95	ns	1	1.18	ns
AB	1	0.46	ns	1	0.12	ns	1	2.48	.11
Error	222			223			344		

ns not significant (p>.15)

Table 10

Analysis of Variance for Students of Non-Vocational Teachers on the Three Dependent Measures by Directiveness of Teacher (A) and Personality of Student on the F-Scale (B)

SOURCE	Course Satisfaction			Teacher Preference			Grades		
	df	F	P	df	F	P	df	F	P
A (D-ND)	1	10.42	.001	1	9.32	.01	1	16.90	.001
B (Pers.)	1	4.72	.05	1	1.94	ns	1	0.11	ns
AB	1	2.72	.10	1	0.03	ns	1	2.68	.10
Error	341			341			344		

ns not significant (P> .15)

of the hypothesis tested. Abstract (high System IV) students showed a clear preference for non-directive over directive teachers (means of 1.1 and 2.0 respectively) while concrete (low System IV) students reacted similarly to each type of teacher (means of 1.3 and 1.4). Thus, on the measure of teacher preference for vocational teachers, outcomes were jointly a function of teacher style and student personality, as predicted.

b. Non-Vocational teachers The results for non-vocational teachers appear in Tables 9 and 10. Significant main effects for teacher style were obtained in five of the six analysis covering each of the three dependent variables [two on course satisfaction ($F = 4.64$, df = 1,222, $p < .05$; $F = 10.42$, df = 1, 341, $p < .001$), one on teacher preference ($F = 9.32$, df = 1,341, $p < .01$), and two on grades ($F = 24.20$, df = 1,344, $p < .001$; $F = 16.90$, df = 1,344, $p < .001$)] . As can be seen by examining the means in Table 11, non-directive non-vocational teachers were more preferred (2.4 to 2.6), generated greater satisfaction (20.5 to 23.2), and generated higher grades (2.7 to 3.1) than their directive counterparts. Thus, non-directive teachers seemed to be more effective than directive teachers in both vocational and non-vocational areas.

In addition, two of the six interactions tended toward significance ($p < .10$), and the means for these interactions appear in Tables 12b and c. These tables show that while authoritarian students show little differentiation in either satisfaction (20.1 vs. 21.3), or grades (2.7 vs. 3.0) between non-directive and directive non-vocational teaching, non-authoritarian students show markedly greater satisfaction (20.8 vs. 24.9) and substantially higher grades (2.6 vs. 3.2) from non-directive teachers as compared to directive teachers. Again, effectiveness would seem to be a joint function of teacher style and personality.

Interestingly, independent of teaching style, authoritarian students appeared to be more satisfied with their non-vocational courses than non-authoritarian students.

Overall, then, while non-directive teachers appeared to be more effective than directive teachers, the superiority of the former was more marked for abstract students than for concrete students, as indicated by some significant interactions.

Table 11

Mean Student Scores on the Three Dependent Measures as a Function of Teacher Directiveness (for the analyses based on the System IV measure and the F-Scale measure separately)

	Vocational Teachers		Non-Vocational Teachers	
	System IV Analysis	F-Scale Analysis	System IV Analysis	F-Scale Analysis
Satisfaction				
Dir. Teachers	16.5	17.8	23.6	23.2
Non Dir. Teachers	15.8	15.3***	21.5*	20.5***
Teacher Preference				
Dir. Teachers	1.6	1.8	2.7	2.6
Non Dir. Teachers	1.2*	1.3***	2.6	2.4**
Grades				
Dir. Teachers	2.9	2.9	3.1	3.1
Non Dir. Teachers	2.9	2.9	2.6***	2.7***

* Mean differences significant at $p < .05$
** Mean differences significant at $p < .01$
*** Mean differences significant at $p < .001$

Note: Lower scores on each measure represent more satisfaction, a greater preference, and a higher grade.

Table 12

Mean Student Scores on Those Dependent Measures Yielding a Significant Interaction for Teacher Directiveness by Student Personality

a. Teacher Preference

	Vocational Teachers	
STUDENTS	Directive	Non-Directive
high IV (abstract)	2.0	1.1
low IV (concrete)	1.4	1.3

b. Satisfaction

	Non-Vocational Teachers	
	Directive	Non-Directive
low F (abstract)	24.9	20.8
high F (concrete)	21.3	20.1

c. Grades

	Non-Vocational Teachers	
	Directive	Non-Directive
low F (abstract)	3.2	2.6
high F (concrete)	3.0	2.7

3. Analysis of Variance by Vocational-Non-Vocational & Teacher Style

It was impossible to separate subject taught from milieu in which it was taught, i.e., vocational teachers teach vocational subjects primarily in a shop while non-vocational teachers teach non-vocational subjects in a classroom. However, to directly examine the effects of this combined subject matter-milieu variable, the students of vocational and non-vocational teachers were included in the same analysis rather than analyzed separately as was the case in the previous analyses.[4]

The results of the analysis of variance of the three dependent measures by vocational-non-vocational teachers and teacher style appears in Table 13. Means appear in Table 14. Significant main effects for vocational vs. non-vocational teachers were obtained on all three dependent measures. Students were more satisfied with vocational teachers (means of 16.3 vs. 20.8) and preferred vocational teachers (means of 1.6 vs. 2.5) but obtained slightly higher grades from non-vocational teachers (means of 2.8 vs. 3.0). This latter finding may indicate that non-vocational courses are easier, non-vocational teachers are easier markers, or non-vocational teachers are more effective.

As was shown in the previous analysis, and reaffirmed in this analysis, non-directive teachers generated greater course satisfaction (means of 18.7 vs. 20.2), were more preferred (means of 2.0 vs. 2.3) and generated higher grades (1.6 vs. 3.0) than their directive counterparts. Main effects on all three measures were highly significant.

Of the three interactions tested in these three analyses, one was highly significant (on grades) and one approached significance (on teacher preference). The means on which these interactions were based can be seen in Table 14. Among students of vocational teachers, grades earned from directive teachers are approximately the same as those earned from non-directive teachers (3.1 and 3.0, respectively). However, among students of non-vocational teachers, grades earned from directive teachers are considerably lower than those earned from non-directive teachers (3.2 and 2.7, respectively). If grades earned by students are a measure of teacher effectiveness (in at least a relative sense), then we can conclude that in

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[4] Admittedly, there is additional confounding in this analysis. Vocational and non-vocational teachers were kept separate in previous analyses since some but not all students reacted to both a vocational and non-vocational teacher. In the present case, all teachers were analyzed together to assess the subject matter effect. The fact that repeated measurement is partial and incomplete makes the statistical test a conservative estimate of subject matter effects.

Table 13

Analysis of Variance of the Three Dependent Measures by Vocational - Non-Vocational Teacher (A) and Directiveness of Teacher (B)

SOURCE	Course Satisfaction df	F	P	Teacher Preference df	F	P	Grades df	F	P
A (V-NV)	1	57.57	.001	1	159.75	.001	1	7.69	.01
B (D-ND)	1	7.64	.01	1	22.98	.001	1	101.39	.001
AB	1	1.72	ns	1	2.94	.10	1	158.31	.001
Error	583			530			723		

ns not significant ($p > .15$)

Table 14

Mean Student Scores on the Three Dependent Measures as a Function of Vocational - Non-Vocational Teachers and Directive - Non-Directive Teachers

	Vocational Teachers	Non-Vocational Teachers	Combined
Satisfaction			
Dir Teachers	17.7	21.4	20.2
Non Dir Teachers	15.1	20.4	18.7
Combined	16.3	20.8	
Teacher Preference			
Dir Teachers	1.8	2.6	2.3
Non Dir Teachers	1.3	2.4	2.0
Combined	1.6	2.5	
Grades			
Dir Teachers	3.1	3.2	3.0
Non Dir Teachers	3.0	2.7	2.6
Combined	3.0	2.8	

teaching vocational subjects the two teaching styles - directive and non-directive - are equally effective, while in teaching non-vocational subjects, non-directive teaching is considerably more effective than directive teaching. Other interpretations will be considered in the next chapter of this report.

Paradoxically, findings on teacher preference did not mirror those on grades. While the two teaching styles did not produce different grades in vocational subjects, but did in non-vocational subjects, somewhat the reverse occurred for teacher preference. While non-directive teachers of vocational subjects were strongly preferred over their directive counterparts (means of 1.3 and 1.8 respectively), non-directive teachers of non-vocational subjects were only slightly preferred over their directive counterparts (means of 2.4 and 2.6, respectively). However, since the ceiling on teacher preference was the rank of "3", the apparent difference may be based on a ceiling effect among non-vocational teachers; thus, the interaction may be more specious than real. Thus, the third hypothesis of the study, predicting an interaction between teaching style and subject matter received partial support.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

A. Phase I: The Psychometric Study - Conclusions and Discussion

As a result of the findings on the SPOTS, it was possible to reconstruct the SPOTS into a shorter and more conceptually-compact measure. The revised SPOTS (see Appendix G) contains 17 items. Thirteen of these items have significant loadings on Factor 1 and also show significant correlations with the total SPOTS score.[5] Four other items were added to those 13, these being items which correlated highly with one of the personality systems and the total SPOTS score as well. For future research the revised SPOTS is recommended since it has a higher degree of internal consistency and unidimensionality than its forerunner. (Table 3 indicates the item numbers on the revised SPOTS as well as the original numbers). The revised SPOTS was subsequently used to test the hypotheses of the study.

The SPOTS was also shown to have another important quality, that of yielding high inter-judge reliability, i.e., the correspondence between student judges was high. The correspondence between the SPOTS and the observer judgments (the ORS and TSC) was not as high as might be desired. Only on one of the four measures derived from those two instruments was a high correspondence obtained.

In concordance with other studies that have been done, a relationship between teacher style and personality structure was obtained. The extent to which a teacher was judged (by the trained observers) as being nondirective was significantly related to the extent to which the teacher was abstract-independent (System IV). While this expected relationship held when the observer measures of teacher style were used, it failed to hold for the SPOTS as the measure of teacher style.

The findings suggest that the perceptions of students as judges of teaching style do not mirror those of trained observers. This may have been due in a large part to the relatively small amount of time spent in the classroom by the observers. However, it is more probable that it reflects several basic differences between the observers and the students: (1) students based their judgments on a different set of teacher behaviors than did the observers, i.e., the same behavior observed by different judges was rated differently, (2) students based their judgments on their overall experiences within the classroom, i.e., a host of different behaviors had the same connotative meaning and were therefore similarly rated. Thus for example, the students judgments tended to cluster around the midpoint of the nine point scale; the observers, on the other hand, having been more heavily exposed to educational and psychological research, were neither threatened nor enhanced by the observed teacher and therefore did not hesitate to use extremely high or low ratings to describe how the teacher behaved.

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[5] Of the 15 items loading heavily on Factor 1, one was discarded due to a low correlation with the SPOTS total score while two were merged to form a single item due to their comparability.

Another point worth mentioning has to do with the nature of the observer rating instruments. Since no factor analytic study was undertaken to examine the "purity" of the ORS and the TSC, there is the distinct possibility that neither instrument was measuring teacher directiveness alone. One suspects then that the observer rating scales despite their superficial congruity with the SPOTS were assessing more than simple teaching style. In summary, the differences between student and observer ratings may be accounted for by: (a) perceptual differences among the judges as an outgrowth of different experiences with the teachers, or (b) the nature of the measuring devices.

Overall, the SPOTS appeared to satisfy the five criteria suggested by Remmers (1963) for judging the adequacy of student rating scales. The scale showed (a) objectivity, it yielding verifiable and reproducible data; (b) reliability, it was consistent over judges; (c) sensitivity, it discriminated between teachers and teaching styles; (d) relevance, it was related to the construct of directiveness (as evidenced by its relation to the ORS and further strengthened by the factor analysis), (e) utility, it was high in efficiency and practicality.

The Revised SPOTS has been appended for the use of other researchers interested in studying the behavior of the classroom teacher on the directiveness dimension. Moreover, the revised SPOTS was considered adequate for use in completing the study, i.e., testing the hypotheses.

B. Phase II: Testing the Hypotheses - Conclusions and Discussion

The findings in this experiment led to the following conclusions:

(1) In an absolute sense, teachers of vocational subjects were more non-directive than teachers of non-vocational subjects.

(2) Students were more satisfied with and preferred non-directive teachers to directive teachers, both in the vocational and non-vocational areas. However, students' preference for non-directive teachers was more marked among vocational teachers than among non-vocational teachers.

(3) Students earned higher grades from non-directive non-vocational teachers than they did from directive non-vocational teachers. (Grades earned from the two groups of vocational teachers, however, were comparable.)

(4) Abstract students showed a marked preference for non-directive vocational teachers over directive ones while concrete students showed approximately equal preference for the two groups.

(5) Non-authoritarian students showed more marked course satisfaction and higher grades under non-directive non-vocational teachers as compared to directive teachers than did authoritarian students. That is, non-authoritarian students showed greater discrimination and a more differentiated outcome in favor of non-directive teachers than did their more authoritarian counterparts.

(6) Students preferred and were more satisfied with vocational teachers than non-vocational teachers but they earned slightly higher grades from non-vocational teachers.

Each of these findings will be discussed in turn.

1. Vocational teachers are more non-directive

Based on a comparison of SPOTS ratings for vocational and non-vocational teachers, it was found that vocational teachers were perceived by students as being more non-directive. Considering the nature of the scale, this means that vocational teachers were seen as being less absolute, structured, and formal than non-vocational teachers. This finding could be based on real differences between the two teaching milieus (i.e., shop and classroom), or on the possibility that the SPOTS had not been completely freed of an evaluative dimension, and was, in part, measuring preference. The nature of all the findings when taken together seems to indicate that stylistic differences existed between teachers categorized as directive and those categorized as non-directive on the SPOTS. Thus, it was concluded that SPOTS differences were indicative of differences in teaching style.

Since teachers in each group, vocational and non-vocational, were ranked independently of the other group on directiveness and assigned to one of the two styles as a function of their rank in their group, it was possible to end up with four groups of teachers of equal size, a directive and a non-directive group within both the vocational and non-vocational group, thus satisfying the requirements of the design. In so doing however, the labels "directive" and "non-directive" became relative rather than absolute.

2. Students prefer non-directive teachers

Students indicated a marked preference for non-directive teachers, particularly among vocational teachers. Thus, students seem to prefer teachers who function in a more informal, unstructured, and relative manner. One might argue that since students completed the SPOTS presumably describing the teacher, they would tend to describe their more preferred teachers in more non-directive terms. However, since students tended to earn higher grades from non-directive teachers (described below), it seems reasonable to conclude that the SPOTS is measuring something other than teacher preference, and the relation between teacher directiveness as measured by the SPOTS and teacher preference is not specious.

Many studies cited in the introduction to this report found that students were more satisfied with non-directive teaching. Most notable among these is the work of Lewin, Lippitt, and White (1939), described previously, which showed that youngsters overwhelmingly preferred a leader who behaved in a prearranged manner classified as "democratic." Essentially, the present study replicates the Lewin et al. finding on a widely different group and in a naturalistic rather than manipulative experiment.

A statistical interaction was obtained showing that the preference for non-directive over directive teachers was considerably more marked for vocational teachers than for non-vocational teachers. In part it would seem that this interaction is a function of the manner in which preference was measured, and thus spurious. Teachers were ranked from one to six by the students. Since all students did not rank six teachers, all teachers receiving the rank of three or worse (four, five or six) were classified as "three." Since students overwhelmingly preferred vocational over non-vocational teachers (non-vocational teachers received the average ranking of 2.5 as compared to 1.6 for vocational teachers), the rankings of non-vocational teachers were clustered at the high end of the scale, leaving little room for differentiation among directive and non-directive. Moreover, in reacting to the qualities of directive vs. non-directive and vocational vs. non-vocational simultaneously, the vocational - non-vocational seemed to be the paramount consideration, accounting for by far the largest portion of the variance in these analyses.

3. Students earn higher grades from non-directive non-vocational teachers

Students who completed non-vocational courses with non-directive teachers earned higher grades than students who completed non-vocational courses with directive teachers. Grades were originally included in this study as a behavioral measure of teacher effectiveness, when considering the students in a class cumulatively. That is, if the students in the classes of teachers using one particular style get, on the average, higher grades than the students in the classes of teachers using another style (as occurred in this experiment), then it is safe to conclude that the former group of students are outperforming the latter group (since individual teacher differences in grading are likely to be balanced out across the two styles). We must ask ourselves whether non-directive non-vocational teachers, as a group, routinely give higher grades than their directive counterparts. There is no reason to suspect that this is the case. Easiness of grading was not a characteristic included in the operational definition of directiveness, nor did any item on the SPOTS deal with it. Moreover, students completed the SPOTS on teachers about the middle of the school year, well before they were in a position to know their grades. Thus, we cannot conclude that grades are a direct by-product of teaching style. Rather they would seen to be a reflection on teaching effectiveness. Students in the classes taught by non-directive teachers must be learning more, and therefore, receive higher grades. Consequently, non-directive teaching of non-vocational subjects can be said to be more effective than directive teaching based on the findings of this study.

4. Abstract students differentiate in favor of non-directive teachers

The primary purpose of this research was to test the hypothesis that teacher effectiveness was conjointly a function of teacher style and student orientation. That is, the expectation was that certain teaching styles (e.g., non-directive) would be most effective with students of a particular orientation (e.g., abstract). In fact, this hypothesis was borne out by some of the data. Students having an abstract (i.e., open-minded, flexible, multidimensional) personality orientation showed a markedly greater preference for vocational teachers using the non-directive style over those using the directive style than did concrete (i.e., closed-minded, rigid, overgeneralizing) students, the latter reacting more nearly equally to vocational teachers of the two styles.

Recall from previous research and information presented earlier that abstract individuals react to incoming information in a greater variety of ways than do concrete individuals. Moreover, these alternative ways of dealing with information are more internally controlled in the case of abstract persons, while for concrete persons they are more externally controlled. In some ways a computor can be called an analogue of the concrete person. The routine for processing incoming information is specified by a program which is developed not by the computor but by a person external to the computor, the programmer. Any type of information which is discrepant in format from that which the computor has been programmed to process will cause the processing to be faulty. The computor cannot adjust "itself" to deal with the ambiguous and the unexpected. The abstract person is unlike a computor in that he creates "programs" to deal with information in terms of the information and situational requirements present at the time. Thus, it was predicted, and subsequently demonstrated, that while concrete persons did not differentiate in their preference between the highly structured, directive teacher and the less structured, non-directive teacher, abstract students preferred the latter who presumably provided them with greater latitude for structuring the situation for themselves.

This is indeed a striking finding and supports much of the argumentation contained in the beginning section of this report dealing with student teaching and teacher behavior. To the extent that teacher preference is a criterion of effectiveness, this finding leads one to claim that the teacher must be trained to alter his style of teaching to fit the dominant learning styles of his students. He must be trained to differentiate between abstract and concrete learners, just as he differentiates between slow and fast learners, and be able to alter his teaching style as his class membership requires it. The effective teacher must not be the captive of his own acquired style; rather he must be able to react to student needs by adopting the most suitable style for the group and circumstances of the moment. He must be able (in the words of Hunt, 1966a) to _radiate_ environments.

5. Non-authoritarian students differentiate in favor of non-directive teachers

The hypothesis that teacher effectiveness was conjointly a function of teacher style and student orientation received further support on the dependent measures of satisfaction and grades. In dealing with student orientation, two somewhat related personality frameworks were employed. The distinction between abstract and concrete orientations (dealt with above) was one. The second was the distinction between authoritarian and non-authoritarian orientations based on the use of the F-Scale. The authoritarian personality, as described by Adorno et al. (1950) displays the following characteristics: (1) conventionality, (2) aggression toward those of lesser perceived standing, (3) submission to perceived authority, (4) beliefs in superstition and stereotopy, (5) anti-intraceptiveness (opposition to the realm of the subjective, (6) perception of people and groups in terms of power and toughness, (7) a destructive and cynical view of the world, (8) a projection of one's own unacceptable impulses, and (9) a puritanical concern about sex.[6] The information processing approach used by authoritarian individuals is characterized by rigidity, overgeneralization, black-white categorizing (polarizing), avoidance of ambiguity, and sterotyping (and is in many ways similar to the concrete-dependent type of the Tuckman model). Non-authoritarian persons can be described by simply reversing the description of authoritarian persons.

It was found in this study that non-authoritarian students (low F-Scale scorers) markedly preferred non-directive non-vocational teachers over directive non-vocational teachers while authoritarian students (high F-Scale scorers) showed little differentiation in preference between these two teaching groups. This conformed to the hypothesis and was directly in line with the finding described above (#4).

Moreover, non-authoritarian students earned markedly higher grades from non-directive non-vocational teachers as compared to directive ones while authoritarian students again showed little differentiation as a function of the two groups.

What these findings indicate is that while an authoritarian type of student is about equally satisfied with directive and non-directive teachers of non-vocational subjects and performs about equally well for both, non-authoritarian (open-minded, flexible) students are more satisfied with the unstructured, informal, non-absolute approach used by non-directive teachers and, moreover, perform better (i.e., earn higher grades) when taught by non-directive teachers. That is, when the personality of the student is in the direction of flexibility, tolerance for ambiguity, and informality, he is more likely to be satisfied with and perform better for a teacher whose teaching style is not rigidly structured but who adopts a more student-oriented and flexible approach to teaching. Thus, as predicted, success in the classroom appeared to be jointly determined by the way the teacher teaches and the orientation of the student to teaching style.

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[6] Items dealing with this characteristic were omitted from the F-Scale at the request of the director of one of the participating school systems in order to avoid creating parental concern.

It is likely that the findings would have been even more dramatic if the range of students on the two personality measures had been greater than it turned out to be working with a vocational high school population. While means on the personality measures for the students tested were not reported, it in fact was found that the distribution of scores on both the Interpersonal Topical Inventory and the F-Scale were narrower and lower on the average than has been found for comprehensive high school student groups. Since statistical comparisons profit from the utilization of broader rather than somewhat restrictive scores on personality measures, it is not unlikely that effects were somewhat attenuated by this fact.

6. Students prefer the vocational but earn higher grades in non-vocational

Students showed a marked preference for vocational teachers and were substantially more satisfied with their vocational courses as compared to the non-vocational ones. This is not surprising in that the students were vocational majors in an area vocational high school and therefore were commited to vocational education. In addition, a small but significant difference in student grades was obtained, with students earning higher grades from non-vocational than from vocational teachers. This, of course, could mean that non-vocational courses are easier, that non-vocational teachers are easier graders, or that students learn more in their non-vocational courses. It is much easier to interpret grade differences between teachers in the same subject area who differ only in teaching style, since that comparison controls for subject matter differences. However, to compare grades across subject areas leaves one with too many alternative interpretations and no way of deciding between them. Grade differences between vocational and non-vocational courses are less likely to be an indication of effectiveness than grade differences between directive and non-directive non-vocational teachers.

It is more likely that the standards of grading differ across subject areas as do the difficulty levels.

C. Recommendations

The following are offered as recommendations based on the findings of this study:

(1) Teachers in training should be given more information about the non-directive teaching style and should be afforded more supervised opportunity to practice it. Since this study showed that the non-directive style was more effective (i.e., more satisfying, more preferred, and yielding higher grades), teachers would do well to develop a capability to use this style, particularly if it is not one that comes to a particular teacher "naturally."

(2) Teachers in training should be exposed to the notion of radiating different environments as a function of student personality characteristics. Teachers should be exposed to ideas about student personality orientations and how these orientations affect the manner in which a student learns and functions in the classroom. By exposing teachers to the concepts of different teaching styles and different student orientations, it will become possible to develop the idea that teachers should map style onto student orientation. That is, the teacher should be helped to develop the capability to function as a reactor to student needs by adopting a particular teaching style in terms of the students to be taught and the likely outcome of the style with those students. This approach has been used in the training of Peace Corps volunteers. They have been trained to radiate a variety of environments, and to choose between them in terms of the specific individuals and groups with which they are working. It is recommended that the whole idea of radiating environments as a function of student needs and orientations be more fully explored and applied to teacher education.

This recommendation is perhaps particularly appropriate in the preparation of teachers for vocational schools for whom more emphasis should be placed on individual student differences than is now done. After beginning to appreciate differences in student learning styles, teachers can then develop the capability to use alternative teaching styles and to choose between them as the situation requires.

(3) Modification in the nature of non-vocational courses in vocational schools should be undertaken in order to overcome the great disparity between students' satisfaction with vocational courses and their satisfaction with non-vocational courses. Perhaps a closer intermeshing and integration of vocational and non-vocational offerings would make the latter both more meaningful and more palatable. Relative to vocational courses and vocational teachers, students did not like non-vocational courses and non-vocational teachers. One might argue that since these were vocational students in area vocational high schools making their choices, it is not surprising. Regardless of whether this finding is surprising or not, it identifies a weak point in the school program. It is important for vocational students to develop skills and knowledge in areas such as communications, citizenship, computations, and science as an important aspect of both the development of their occupational skills, and the pursuit of their adult life in society. Non-vocational subjects (i.e., English, history, problems of democracy, science, and mathematics) are an important element in the vocational program and should be satisfying for students. Perhaps a closer integration of these subjects with vocational subjects would contribute to this outcome.

(4) More research and development should be undertaken relative to the issue of dealing with individual student differences in different learning situations. A more complete teacher-student interaction model should be constructed to identify the relevant individual variables and situational variables and how they affect learning outcomes when different teaching styles are employed. One such relevant individual variable may be the dominant perceptual mode used by students in learning and interacting with their environment. Some students learn best through the verbal mode, others through a visual mode, and others through a manipulative mode. This in addition to the distinction between abstract and concrete information processing may well serve as the basis of such a model, lending itself to the development and testing of alternative teaching strategies and teacher training programs.

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APPENDIX

A. Original SPOTS (32 items)
B. Observer Rating Scale
C. Teacher Style Checklist
D. Individual Topical Inventory (ITI)
E. ITI Scoring Key
F. F-Scale
G. Revised SPOTS (17 items)
H. Satisfaction Scale
I. Data Coding & Rostering Format

A.

STUDENT PERCEPTION OF TEACHER STYLE
(SPOTS)

1. Your teacher takes up most of the class time

1 2 3	4 5 6	7 8 9
Lecturing to the class	Discussing problems with class	Letting the class solve problems without any help on his part

2. Your teacher is mainly interested in

1 2 3	4 5 6	7 8 9
How many facts you know	If he gets an idea across to you	Whether you can "think for yourself"

3. The teacher

1 2 3	4 5 6	7 8 9
Makes you do what he wants you to most of the time	Makes you do what he wants you to sometimes	Lets you make your own decisions most of the time

4. The teacher

1 2 3	4 5 6	7 8 9
Doesn't like to talk about any subject that isn't part of your course	Talks about your course subject a lot but encourages the discussion of other matters	Likes to talk about different subjects and is interested in your personal opinions

5. The students in our class

1 2 3	4 5 6	7 8 9
Only speak when the teacher asks them a question	Feel free to ask the teacher questions	Feel free to speak up in class at almost any time

6. When you do something wrong, the teacher

1 2 3	4 5 6	7 8 9
Punishes you because he doesn't like what you did	Says that he must punish you because it was not against the school rules	Tells you that he understands why you did it and explains why it is not the right thing to do

7. When you give a wrong answer to the teacher's question

1 2 3	4 5 6	7 8 9
He skips over you and he asks another student	He tells you that you are wrong and then tells you why	He asks you how you got the answer, tries to understand your reasoning, and then tells you the right answer

8. When the teacher or another student says something you don't agree with

1 2 3	4 5 6	7 8 9
You try not to start an argument and feel that it's not your job to tell him he's wrong	You tell why you disagree when the teacher asks you to	You feel free to discuss and argue your point of view whether the teacher asks you to or not

9. The teacher

1 2 3	4 5 6	7 8 9
Usually bases his opinions on what the book says or what the principal says	Usually gives you another point of view in addition to what the book says	Tells you that books, teachers, principals & customs are not always right

10. If you were to call your teacher by his first name,

1 2 3	4 5 6	7 8 9
He wouldn't like it & would tell you not to do it	He would tell you that it's alright to call him by his first name outside of school but that he would prefer you to call him by his last name while he is teaching	He wouldn't mind at all

11. The teacher

1 2 3	4 5 6	7 8 9
Never tells jokes while he's teaching & does not like it when the students joke around	Sometimes tells a joke or a humerous story to get a point across	Always tells funny stories and encourages the students to tell about funny things that happened to them

12. The teacher spends a lot of time

1 2 3	4 5 6	7 8 9
Telling you about tests grades and about how the course is planned	Giving you an idea about tests, grades & the course but not too much time giving you the details	Asking you to make your own decisions about tests, grades, the course plan or group projects

13. When the students are participating in a group project or in a committee, the teacher

1 2 3	4 5 6	7 8 9
Tells them exactly what to do	Makes general suggestions as to how the project should be handled	Lets the group members decide how project should be handled

14. Usually, after the bell has rung,

1 2 3	4 5 6	7 8 9
The class is very quiet & the students are at their desks	There is still some talking until the teacher begins the lesson	There is still a lot of talking going on

15. The teacher usually

1 2 3	4 5 6	7 8 9
Makes all the students do the same thing in class (working, studying)	Makes some students work on projects & some students study, depending on how far behind they are	Lets the students do what they like as long as they complete the number of projects or chapters assigned by the end of the week

16. Sometimes when the teacher sees that you're going to do something wrong,

1 2 3	4 5 6	7 8 9
He tells you not to do it	He explains what will happen if you do it	The teacher lets you do it so that you will learn for yourself what will happen

17. When you get angry at the teacher,

1 2 3	4 5 6	7 8 9
You usually hold it in because the teacher would punish any show of anger	You feel that you can tell the teacher why you're angry	You feel that you could show your anger without the teacher becoming angry

18. The teacher

1 2 3	4 5 6	7 8 9
Acts like a teacher all of the time	Acts like a teacher most of the time but sometimes seems more like a friend	Acts like a friend more than he acts like a teacher

19. The first thing the teacher does when he comes into the room

1 2 3	4 5 6	7 8 9
Is to tell you to be quiet so that he can take attendance	Is to take attendance & asks you why some students are absent (if they are sick, etc.)	Is to let you start your projects or studying & then takes attendance while you're working

20. When a student is late for class, the teacher

1 2 3	4 5 6	7 8 9
Sends him to the office to get a note from the principal	Asks the student why he's late, & tells him to get to his desk	Doesn't say anything at all

21. In this class the students

1 2 3	4 5 6	7 8 9
Have a pretty good idea about what they are going to learn in this course	Know what they're going to learn in this unit but don't know what the next unit will cover	Have no idea what the class will be studying next week

22. When you have to give an oral report to the class

1 2 3	4 5 6	7 8 9
Does the teacher require that you hand in a written plan or outline ahead of time	Assign you a topic & discuss the report with you before you present it to the class	Have no idea what you're going to be talking about

23. For each class session the teacher usually

1 2 3	4 5 6	7 8 9
Seems to have a carefully developed & detailed class plan worked out for material to be covered & activities to be undertaken	Seemed to have worked out a general outline of what is to be covered that day	Seemed to have only a very vague & loose work plan prepared in advance

24. In this class homework

1 2 3	4 5 6	7 8 9
Is assigned every day & must be handed in the next day	Is divided between work which is due every day & a few long term projects each term	Usually consists of long term projects

25. When we are working on a class project the teacher

1 2 3	4 5 6	7 8 9
Tells each one of us exactly what we are to do	Suggests ways that we might handle the project	Tells us to get together & decide which one of us should be responsible for which part of the project

26. In this class

1 2 3	4 5 6	7 8 9
The teacher plans all class projects	The students usually help decide what class projects should be undertaken	The students get together & decide what project the class should undertake

27. In our class pupils work together in groups or on a committee

1 2 3	4 5 6	7 8 9
Never	Sometimes	A great deal

28. When there is work which has to be done with another student we are

1 2 3	4 5 6	7 8 9
Usually told with whom to work	Can sometimes choose our own work partner	Can usually decide with whom we want to work

29. When there is work to be done in groups, the teacher

1 2 3	4 5 6	7 8 9
Usually assigns each student to a specific group	Sometimes assigns us to specific groups, but sometimes allows us to decide which group we want to work with	Usually allows us to choose our own work group

30. Does the teacher usually hand back papers

1 2 3	4 5 6	7 8 9
With the wrong items marked for you to correct each mistake	Sometimes indicating the correct answer to something you got wrong, but sometimes wants you to find your own mistake	With items marked & corrections inked in

31. The teacher

1 2 3	4 5 6	7 8 9
Supplied us with all the help & information we need to work on a project or solve a problem	Tells us where we can find the information he knows we're going to need	Makes it clear that he will supply help & information if we ask for it

32. When the teacher makes plans for a project or grades

1 2 3	4 5 6	7 8 9
He tells you about them	He suggests that these are probably the best ways to approach the project	He asks for your opinion about the plans

B.

REVISED
OBSERVER RATING SCALE OF TEACHER STYLE

Structuring

	1 2 3	4 5 6	7 8 9
1.	All student responses directed toward teacher.	Students and teachers reciprocate responses.	Students respond to each other's comments; few comments directed toward teacher; teacher avoids directing class discussion.
2.	Teacher works with group on project; demonstrates what is to be done & how it is to be done; teacher becomes leader of group.	Teacher works with group, demonstrating & guiding when asked by group but takes over leadership role only temporarily.	Teacher avoids giving directions; avoids any leadership activity; allows class or group to appoint leaders, emphasizing the advantage for the group to learn by doing things by themselves.
3.	Teacher structures the classroom physical & social positions; assigns seats, work partners, function, i.e., messenger boy, paper collector	Teacher structures some situations, e.g., seating, but allows class to make its own decisions about other situations, e.g., work partners	Teacher encourages students to choose their own seats, work partners, & to elect messenger boys, etc.

Interaction

	1 2 3	4 5 6	7 8 9
4.	Teacher makes clear statements of direction, commands, orders.	Teacher strongly suggests that a certain plan of action be undertaken.	Teacher solicits opinions of class.
5.	Teacher makes all decisions re: class content, activity, etc.	Teacher throws out alternative plans for structuring classroom; allows students to choose.	Teacher encourages class to make all decisions.

6.	1 2 3 Teacher does not use group work at all as a didactic technique.	4 5 6 Teacher occasionally divides class into groups for work on project.	7 8 9 Teacher uses groups often as a method of teaching.
7.	1 2 3 Teacher decides whether to assign students singly or in groups.	4 5 6 Teacher suggests that work be done in groups but students elect their own officer(s) & decide on group composition & division of labor.	7 8 9 Students decide how they want to handle project or problem; whether in groups or singly.
8.	1 2 3 Teacher tells pupils each step to take, "1st we do this, etc", specifies short term rather than long term goals.	4 5 6 Teacher sketches general outline to each group; lets students decide what specific steps to take from their goals.	7 8 9 Teacher has no organized plan - pupils make all plans.
9.	1 2 3 Teacher gives attention to detail - highly organized & well prepared	4 5 6 Work for day fairly well organized & seemingly well prepared.	7 8 9 Teacher seemed disorganized - little preparation evident.

Climate

10.	1 2 3 Teacher maintains very strict teacher-student differentiation.	4 5 6 Teacher moderately easy going & informal; maintains role as authority figure when required	7 8 9 Teacher makes obvious effort to be "one of the boys."
11.	1 2 3 Teacher has definite standards of praise & criticism for evaluating individual & group activities - these are not clear to student.	4 5 6 Teacher communicates in objective, fact minded way - the basis for his praise & criticism of individual & group activities.	7 8 9 Teacher makes no attempt to evaluate negatively or positively behavior or production of individuals or group.

	1 2 3	4 5 6	7 8 9
12.	Teacher presents problem without reference to the communicability of the statement; avoids asking whether students understand the situation or its implications.	Teacher presents problem or statement less than two times; asks class whether or not the problem or statement is understood.	Teacher expresses problem in a number of ways with the intention of ensuring the communicability of the idea; takes pains to elaborate and clarify the idea.
13.	Teacher will never change an assignment or procedure.	Teacher will change assignment or procedure if students can master good arguments for so doing.	Teacher easily influenced by student pressure to change assignments.
14.	Teacher maintains strict order at = all times - giving out directions, orders & commands with which student is to comply - disciplinary action for non-compliance.	Teacher guides pupils and makes suggestions without being mandatory.	Teacher encourages class to discipline itself - can tolerate confusion.

Teacher Talk

	1 2 3	4 5 6	7 8 9
15.	Teacher talk consists mainly of facts directly related to general administration (calling roll, reading announcements, making assignments.	Teacher defines problem area for discussion - throws out a few stimulating statements "wide open or reflective questions" and then encourages student initiative in discussing factual course content.	Teacher encourages or allows student discussion of student experiences & personal matters not directly course-related but stemming from discussion, & by so doing shows that he accepts feeling.
16.	Teacher lecturing or asking specific questions relating to factual course content, usually directs question to specific student.	Teacher asks pupils opinions in general through the use of "wide open or reflective questions."	Students encouraged (allowed) to ask unsolicited questions or make unsolicited comments - either content related or not.

Class Discussion

17.	1 2 3 Teacher discourages all discussion.	4 5 6 Teacher permits certain amount of discussion, but brings pupils back to subject at hand after a certain amount of time.	7 8 9 Teacher permits unlimited discussion - tolerates arguing and heated discussion.
18.	1 2 3 Teacher presents classic or traditional opinion in subject area; treats the opinion as truth.	4 5 6 Teacher presents both traditional & non-traditional thought in the subject area; encourages students to make their own decisions as to the validity of the traditional thought.	7 8 9 Teacher attempts to present most recent ideas in the subject area with the intention of casting doubt on the traditional belief.
19.	1 2 3 Teacher provides a single solution to problem; uses authority of books & tradition to justify the solution.	4 5 6 Teacher provides two or more alternative solutions to a problem; emphasizes the relative appropriateness of both.	7 8 9 Teacher does not attempt to solve problem; solicits a number of unproven solutions from class.

C.

TEACHER STYLE CHECKLIST (TSC)

	DIRECTIVE	NON-DIRECTIVE	CAN'T JUDGE
	A	B	C
1.	All student responses are made toward teacher.	Students tend to discuss among themselves rather than directing to teacher.	
	A	B	C
2.	Appoints students to seats.	Lets student sit where he wants to.	
	A	B	C
3.	Appoints students to a particular group	Lets students work with whomever he wishes.	
	A	B	C
4.	Lectures most of the time.	Tends to have intra-class discussion rather than lecture.	
	A	B	C
5.	Seems to prepare lectures ahead of time.	Seems not to emphasize his own prior preparation.	
	A	B	C
6.	Maintains student/teacher differentiation.	Makes effort to be "one of the boys."	
	A	B	C
7.	Uses definite standards of "wrong" & "right" (moral judgment).	Tends to use relative (or rational) standards of "wrong" & "right."	
	A	B	C
8.	Makes general assignment to whole class.	Individualizes homework and/or classwork.	

	DIRECTIVE	NON-DIRECTIVE	CAN'T JUDGE
	A	B	C
9.	Maintains order at all times.	Tolerates some disorder.	
10.	Tends not to get into personal discussions.	Allows students to recall personal experiences or joke around.	
	A	B	C
11.	Appeals to authority, regulations & tradition in justifying judgments and enforcing standards.	Relies on the logic of the situation (motivation, attitudes, needs) to justify judgments.	
	A	B	C
12.	Uses books and authorities as absolute source of "facts."	Allows student discussion of and disagreement with "facts."	
	A	B	C
13.	Teaches facts for their own sake.	Teaches facts for their future application.	
	A	B	C
14.	Chooses leaders on basis of HIS standards.	Allows students to elect officers, foreman, etc.	
	A	B	C
15.	Assigns grades based on HIS feelings of how well the student meets his standards.	Allows students to grade themselves (either totally or partially).	
	A	B	C
16.	Tells student(s) to do a chore.	Asks for volunteers to do a chore.	

	DIRECTIVE	NON-DIRECTIVE	CAN'T JUDGE
	A	B	C
17.	Directs activities and projects (shows each step to be taken).	Gives advice only when asked.	
	A	B	C
18.	Advises students of consequences of actions.	Urges students to "learn for themselves."	
	A	B	C
19.	Seems to be more interested in expressing the problem or fact than in communicating.	Expresses problem in more than one way in order to communicate.	
20.	Emphasizes ability to do a job correctly without reference to inter-personal relationships.	Speaks about role that student will play in the future, emphasizing cooperation between the employer and employee.	

D.

INDIVIDUAL - TOPICAL INVENTORY
(Form A)

INSTRUCTIONS

You will be given some situations and topics to which we would like you to respond. The responses are given in pairs. You are to choose one response from each pair. Choose the response that most closely fits your opinion or feeling and indicate your choice by circling the letter "A" or "B" corresponding to the response chosen. Always choose one member of each pair. Never choose both members of the pair and do not skip over any of the pairs. If you agree with both, choose the one you agree with most strongly. If you do not agree with either, choose the one you find the least disagreeable of the two.

Example:

Here is an example of the way the questions will be asked and the way they should be answered. The manner in which you will indicate your choice between the two given responses is illustrated below:

When I am confused...

Pair No.

(i)

A	B
I try to find a solution and end the confusion.	I completely ignore the fact I am confused.

(ii)

A	B
I break out into a nervous sweat.	I remain calm at all times.

How to respond:

First: Decide which response you agree with most.

Second: Indicate which response you agree with most by circling the identifying letter. Thus, if in comparing the first pair of statements, you agree with the statement, "I try to find a solution and end the confusion," more than with the statement, "I completely ignore the fact that I am confused," you would circle the letter "A" (above the chosen statement). Having chosen one (never both, never neither) statement from the first pair of statements, you would then move on to the second pair. If, in considering the second pair, you find that you agree more with the statement, "I remain calm at all times," (as compared to the statement, "I break out into a nervous sweat"), you would circle the letter "B".

On the pages that follow there are 36 different pairs of responses. There are six pairs to a side of a page and pairs appear on both sides of the pages. You are to select one response from each pair, the one that more accurately shows your opinion or feeling and record your choice by circling the letter indicating the statement chosen. Be frank and indicate, in each case, your true feeling or opinion or the reaction which you actually would make in the situation. Do not indicate how you should feel or act; rather, indicate how you do feel and act.

Make sure that you are aware of the situation or topic that each pair of responses refers to. You will find the situation or topic identified at the top of each page. All items on the page refer to the situation or topic appearing at the top of that page.

When you are finished, your paper should contain 36 circles. Check back and make sure that you have made 36 choices, no more no less.

Remember: (1) Respond only once for each pair; that is, choose one member of the pair, never both, never neither. Indicate your choice by circling either "A" or "B"

(2) Items appear on both sides of the page.

(3) When you are finished you should have made 36 circles.

Work at your own rate of speed but work straight through the inventory without stopping. Once you have completed a page do not return to it.

YOU MAY BEGIN

I. Imagine that someone has criticized you. Choose the response from each pair that comes closest to your feelings about such criticism. Indicate your choice by circling either "A" or "B".

When I am criticized...

Pair No.	A	B
(1)	I try to take the criticism, think about it, and value it for what it is worth. Unjustified criticism is as helpful as justified criticism in discovering what other people's standards are.	I try to accept the criticism but often find that it is not justified. People are too quick to criticize something because it doesn't fit their standards.
(2)	I try to determine whether I was right or wrong. I examine my behavior to see if it was abnormal. Criticism usually indicates that I have acted badly and tends to make me aware of my own bad points.	It could possibly be that there is some misunderstanding about something I did or said. After we both explain our viewpoints, we can probably reach some sort of compromise.
(3)	I listen to what the person says and try to accept it. At any rate, I will compare it to my own way of thinking and try to understand what it means.	I feel that either I'm not right, or the person who is criticizing me is not right. I have a talk with that person to see what's right or wrong.
(4)	I usually do not take it with good humor. Although, at times, constructive criticism is very good, I don't always think that the criticizer knows what he is talking about.	At first I feel that it is unfair and that I know what I am doing, but later I realize that the person criticizing me was right and I am thankful for his advice. I realize that he is just trying to better my actions.
(5)	I try to ask myself what advantages this viewpoint has over mine. Sometimes both views have their advantages and it is better to combine them. Criticism usually helps me to learn better ways of dealing with others.	I am very thankful. Often I can't see my own errors because I am too engrossed in my work at the time. An outsider can judge and help me correct the errors. Criticism in everyday life usually hurts my feelings, but I know it is for my own good.
(6)	It often has little or no effect on me. I don't mind constructive criticism too much, but I dislike destructive criticism. Destructive criticism should be ignored.	I try to accept and consider the criticism. Sometimes it has caused me to change myself; at other times I have felt that the criticism didn't really make much sense.

II. Imagine that you are in doubt. Choose the response from each pair that comes closest to your feelings,about such doubt. Indicate your choice by circling either "A" or "B".

When I am in doubt...

Pair No.	A	B
(7)	I become uncomfortable. Doubt can cause confusion and make one do a poor job. When one is in doubt he should ask and be sure of himself.	I find myself wanting to remove the doubt, but this often takes time. I may ask for help or advice if I feel my questions won't bother the other person.
(8)	I don't get too upset about it. I don't like to ask someone else unless I have to. It's better to discover the correct answer on your own.	I usually go to someone who knows the correct answer to my question. Sometimes I go to a book which will set me straught be removing the doubt.
(9)	I first try to reason things out and check over the facts. Often I approach others to get ideas that will provide a solution.	I think things over, ask questions, and see what I can come up with. Often several answers are reasonable and it may be difficult to settle on one.
(10)	I realize that I'll have to decide on the correct answer on my own. Others try to be helpful, but often do not give me the right advice. I like to judge for myself.	I usually try to find out what others think, especially my friends. They may not know the answer, but they often give me some good ideas.
(11)	I look over the problem and try to see why there is a doubt. I try to figure things out. Sometimes I just have to wait awhile for an answer to come to me.	I try to get some definite information as soon as possible. Doubt can be bad if it lasts too long. It's better to be sure of yourself.
(12)	I consider what is best in the given situation. Although one should not rush himself when in doubt, he should certainly try to discover the right answer.	I act according to the situation. Sometimes doubt can be more serious than at other times and many of our serious doubts must go unanswered.

III. Imagine that a friend has acted differently toward you. Choose the response from each pair that comes closest to your feelings about such an action. Indicate your choice by circling either "A" or "B".

When a friend acts differently toward me...

Pair No.	A	B
(13)	I am not terribly surprised because people canact in many different ways. We are different people and I can't expect to understand all his reasons for acting in different ways.	I am usually somewhat surprised but it doesn't bother me very much. I usually act the way I feel towards others. People worry too much about others' actions and reactions.
(14)	I find out why. If I have done something wrong I will try to straighten out the situation. If I think he's wrong I expect him to clear things up.	I feel that I may have caused him to act in a different way. Of course, he may have other reasons for acting differently which would come out in time.
(15)	I first wonder what the trouble is. I try to look at it from his viewpoint and see if I might be doing something to make him act differently toward me.	It is probably because he has had a bad day, which would explain this different behavior; in other cases he may just be a changeable kind of person.
(16)	It is probably just becuase something is bothering him. I might try to cheer him up or to help him out. If these things didn't work I would just wait for him to get over it.	I try to understand what his different actions mean. I can learn more about my friend if I try to figure out why he does things. Sometimes the reasons may not be very clear.
(17)	There has to be a definite reason. I try to find out this reason, and then act accordingly. If I'm right I'll let him know it. If he's wrong, he should apologize.	I usually let him go his way and I go mine. If a friend wants to act differently that's his business, but it's my business if I don't want to be around when he's that way.
(18)	I don't get excited. People change and this may cause differences. It is important to have friends, but you can't expect them to always be the same.	I like to get things back to normal as soon as possible. It isn't right for friends to have differences between them. Whoever is at fault should straighten himself out.

IV. Think about the topic of people in general. Choose the response from each pair that comes closest to your thought about people. Indicate your choice by circling either "A" or "B".

This I believe about people...

Pair No.	A	B
(19)	Whatever differences may exist between persons, they can usually get along if they really want to. Although their ideas may not agree, they probably still have something in common.	People can learn from those who have different ideas. Other people usually have some information or have had some experience which is interesting and can add to one's knowledge
(20)	People can act in all sorts of ways. No single way is always best, although at certain times a particular action might be wiser than others.	Each person should be able to decide the correct thing for himself. There are always a few choices to be made and the individual himself is in the best position to pick the right one.
(21)	Some people thing they know what's best for others and try to give advice. These people shouldn't make suggestions unless asked for help.	There are certain definite ways in which people should act. Some don't know what the standards are and therefore need to be straightened out.
(22)	I can tell if I am going to get along with a person very soon after meeting him. Most people act either one way or another and usually it is not difficult to say what they are like.	It's hard for me to say what a person is like until I've known him a long time. People are not easy to understand and often act in unpredictable ways.
(23)	People have an outside appearance that usually isn't anything like what can be found on the inside, if you search long and hard enough.	Each person is an individual. Although some people have more good points or bad points than others, no one has the right to change them.
(24)	People can be put into categories on the basis of what they're really like. Knowing the way a person really is helps you to get along with him better.	People are unlike one another in many respects. You can get along with people better and better understand them if you are aware of the differences.

V. Think about the general topic of leaders. Choose the response from each pair that comes closest to your thoughts about leaders. Indicate your choice by circling either "A" or "B".

Leaders...

Pair No.	A	B
(25)	Leaders do not always make the right decisions. In such cases, it is wise for a man to look out for his own welfare.	Leaders are necessary in all cases. If a leader cannot make the right decisions another should be found who can.
(26)	Leaders cannot provide all the answers. They are like other people --they have to try to figure out what action is necessary and learn from their mistakes.	Leaders make decisions sometimes without being sure of themselves. We should try to understand this and think of ways to help them out.
(27)	I like a leader who is aware of how the group feels about things. Such a leader would not lead any two groups in exactly the same way.	A person should be able to put his confidence in a leader and feel that the leader can make the right decision in a difficult situation.
(28)	There are times when a leader shouldn't make decisions for those under him. The leader has the power to decide things, but each man has certain rights also.	A leader should give those under him some opportunity to make decisions, when possible. At times, the leader is not the best judge of a sitaution and should be willing to accept what others have to say.
(29)	Some leaders are good, others are quite poor. Good leaders are those who know what is right for the men under them. These leaders deserve the respect of every man.	Leaders cannot be judged easily. Many things go to make up good leadership. Most people fall short in some way or another, but that is to be expected.
(30)	Leaders are needed more at certain times than at others. Even though people can work out many of their own problems, a leader can sometimes give valuable advice.	Some people need leaders to make their decisions. I prefer to be an individual and decide for myself, when possible. Most leaders won't let you do this.

VI. Imagine that someone has found fault with you. Choose the response from each pair that comes closest to your feelings about such a situation. Indicate your choice by circling either "A" or "B".

When other people find fault with me...

Pair No.	A	B
(31)	It means that someone dislikes something I'm doing. People who find fault with others are not always correct. Each person has his own ideas about what's right.	It means that someone has noticed something and feels he must speak out. It may be that we don't agree about a certain thing. Although we both have our own ideas, we can talk about it.
(32)	I first wonder if they are serious and why they have found fault with me. I then try to consider what they've said and make changes if it will help.	If enough people point out the same fault, there must be something to it. I try to rid myself of the fault, especially if the criticizers are people "in-the-know."
(33)	They have noticed something about me of which I am not aware. Although criticism may be hard to take, it is often helpful.	They are telling me something they feel is correct. Often they may have a good point which can help me in my own thinking. At least it's worthwhile to consider it.
(34)	I may accept what is said or I may not. It depends upon who is pointing out the fault. Sometimes it's best to just stay out of sight.	I accept what is said if it is worthwhile, but sometimes I don't feel like changing anything. I usually question the person.
(35)	I like to find out what it means; since people are different from one another, it could mean almost anything. A few people just like to find fault with others but there's usually something to be learned.	There is something to be changed. Either I am doing something wrong or else they don't like what I'm doing. Whoever is at fault should be informed so that the situation can be set straight.
(36)	I don't mind if their remarks are meant to be helpful, but there are too many people who find fault just to give you a hard time.	It often means that they're trying to be disagreeable. People get this way when they've had a bad day. I try to examine their remarks in terms of what's behind them.

CHECK AND MAKE SURE THAT YOU'VE CHOSEN ONE MEMBER OF EACH PAIR
(A TOTAL OF 36 CIRCLES)

E.

ITI SCORING KEY

Pair No.	SYSTEM A	SYSTEM B	Pair No.	SYSTEM A	SYSTEM B
1.	3	2	19.	3	4
2.	1	4	20.	4	2
3.	3	1	21.	2	1
4.	2	1	22.	1	4
5.	4	3	23.	3	2
6.	2	4	24.	1	3
7.	1	3	25.	2	1
8.	2	1	26.	4	3
9.	3	4	27.	3	1
10.	2	3	28.	2	4
11.	4	1	29.	1	4
12.	2	4	30.	3	2
13.	4	2	31.	2	4
14.	1	3	32.	3	1
15.	3	2	33.	3	4
16.	3	4	34.	1	2
17.	1	2	35.	4	1
18.	4	1	36.	2	3

F.

Name______________________________

OPINION SURVEY #1
(F-Scale)

Following are a number of statements about which we would like you to give your personal opinions. We have tried to cover many different points of view. You will probably agree strongly with some statements and disagree just as strongly with others. Perhaps you will be less certain about some of the statements than about others. In all cases try to give your own opinions; whether you agree or disagree with a statement, you can be sure that many people feel the same way as you do.

In the space provided before each statement, mark how much you agree or disagree. Please mark every statement. Use one of the following numbers to indicate how you feel in each case: +1, +2, +3, -1, -2, or -3. The meaning of each number is given below:

+1 = I AGREE A LITTLE

+2 = I AGREE ON THE WHOLE

+3 = I AGREE VERY MUCH

-1 = I DISAGREE A LITTLE

-2 = I DISAGREE ON THE WHOLE

-3 = I DISAGREE VERY MUCH

______1. Obedience and respect for authority are the most important virtues children should learn.

______2. A person who has bad manners, habits, and breeding can hardly expect to get along with decent people.

______3. If people would talk less and work more, everybody would be better off.

______4. The businessman and the manufacturer are much more important to society than the artist and the professor.

______5. Science has its place, but there are many important things that can never possibly be understood by the human mind.

______6. Young people sometimes get rebellious ideas, but as they grow up they ought to get over them and settle down.

______7. What this country needs most, more than laws and political programs, is a few courageous, tireless, devoted leaders in whom the people can put their faith.

______8. No sane, normal, decent person could ever think of hurting a close friend or relative.

______9. Nobody ever learned anything really important except through suffering.

______10. What the youth needs is strict discipline, rugged determination, and the will to work and fight for family and country.

______11. An insult to our honor should always be punished.

______12. There is hardly anything lower than a person who does not feel a great love, gratitude, and respect for his parents.

______13. Most of our social problems would be solved if we could somehow get rid of the immoral, crooked, and feeble-minded people.

______14. When a person has a problem or worry, it is best for him not to think about it, but to keep busy with more cheerful things.

______15. Every person should have complete faith in some supernatural power whose decisions he obeys without question.

______16. Some people are born with an urge to jump from high places.

______17. People can be divided into two distinct classes: the weak and the strong.

_____18. Someday it will probably be shown that astrology can explain a lot of things.

_____19. Wars and social troubles may someday be ended by an earthquake or flood that will destroy the whole world.

_____20. No weakness or difficulty can hold us back if we have enough will power.

_____21. It is best to use some World War II authorities in Germany to keep order and prevent chaos.

_____22. Most people don't realize how much our lives are controlled by plots hatched in secret places.

_____23. Human nature being what it is, there will always be war and conflict.

_____24. Familiarity breeds contempt.

_____25. Nowadays when so many different kinds of people move around and mix together so much, a person has to protect himself especially carefully against catching an infection or disease from them.

_____26. Nowadays more and more people are prying into matters that should remain personal and private.

G.

STUDENT PERCEPTION OF TEACHER STYLE (REVISED)

(SPOTS)

1. Your teacher is mainly interested in

1 2 3	4 5 6	7 8 9
How many facts you know	If he gets an idea across to you	Whether you can "think" for yourself"

2. The teacher

1 2 3	4 5 6	7 8 9
Makes you do what he wants you to most of the time	Makes you do what he wants you to sometimes	Lets you make your own decisions most of the time

3. The teacher

1 2 3	4 5 6	7 8 9
Doesn't like to talk about any subject that isn't part of your course	Talks about your course subject a lot but encourages the discussion of other matters	Likes to talk about different subjects and is interested in your personal opinions

4. The students in our class

1 2 3	4 5 6	7 8 9
Only speak when the teacher asks them a question	Feel free to ask the teacher questions	Feel free to speak up at almost any time

5. When the teacher or another student says something you don't agree with

1 2 3	4 5 6	7 8 9
You try not to start an argument and feel that it's not your job to tell him he's wrong	You tell why you disagree when the teacher asks you to	You feel free to discuss and argue your point of view whether the teacher asks you or not

6. The teacher

1 2 3	4 5 6	7 8 9
Usually bases his opinions on what the book says or what the principal says	Usually gives you another point of view in addition to what the book says	Tells you that books, teachers, principals & customs are not always right

7. If you were to call your teacher by his first name,

1 2 3	4 5 6	7 8 9
He wouldn't like it & would tell you not to do it	He would tell you that it's alright to call him by his first name outside of school but that he would prefer you to call him by his last name while he is teaching	He wouldn't mind at all

8. The teacher

1 2 3	4 5 6	7 8 9
Never tells jokes while he's teaching & does not like it when the students joke around	Sometimes tells a joke or a humorous story to get a point across	Always tells funny stories & encourages the students to tell about funny things that happened to them

9. The teacher spends a lot of time

1 2 3	4 5 6	7 8 9
Telling you about tests, grades and about how the course is planned	Giving you an idea about tests, grades & the course but not too much time giving you the details	Asking you to make your own decisions about tests, grades, the course plan or group projects

10. When we are working on a group project or in a committee, the teacher

1 2 3	4 5 6	7 8 9
Tells us exactly what to do	Suggest ways that the project might be handled	Lets the group members decide how project should be handled

11. The teacher usually

1 2 3	4 5 6	7 8 9
Makes all the students do the same thing in class (working, studying)	Makes some students work on projects & some students study, depending on how far behind they are	Lets the students do what they like as long as they complete the number of projects or chapters assigned by the end of the week

12. When you get angry at the teacher,

1 2 3	4 5 6	7 8 9
You usually hold it in because the teacher would punish any show of anger	You feel that you can tell the teacher why you're angry	You feel that you could show your anger without the teacher becoming angry

13. The teacher

1 2 3	4 5 6	7 8 9
Acts like a teacher all of the time	Acts like a teacher most of the time but sometimes seems more like a friend	Acts like a friend more than he acts like a teacher

14. The first thing the teacher does when he comes into the room

1 2 3	4 5 6	7 8 9
Is to tell you to be quiet so that he can take attendance	Is to take attendance & ask you why some students are absent (if they are sick, etc.)	Is to let you start your projects or studying & then takes attendance while you're working.

15. In this class homework

1 2 3	4 5 6	7 8 9
Is assigned every day & must be handed in the next day	Is divided between work which is due every day & a few long term projects each term	Usually consists of long-term projects

16. In our class pupils work together in group or on a committee

1 2 3	4 5 6	7 8 9
Never	Sometimes	A great deal

17. When there is work which has to be done with another student we are

1 2 3	4 5 6	7 8 9
Usually told with whom to work	Can sometimes choose our own work partner	Can usually decide with whom we want to work

H.

NAME________________________ Course Name______________________

Teacher_________________________

SATISFACTION SCALE

1. Do you ever feel like skipping this class?

1	2	3	4	5
never	rarely	sometimes	often	always

2. Do you like this class?

1	2	3	4	5
very much	quite a bit	it's alright	not much	hate it

3. How much do you feel you have learned in this class?

1	2	3	4	5
a great deal	quite a bit	a fair amount	not much	nothing

4. Are you proud to be in this class?

1	2	3	4	5
very proud	most of the time	sometimes	not too often	not at all

5. Do you always do your best in this class?

1	2	3	4	5
all the time	most of the time	sometimes	usually not	never

6. How many of the pupils like the teacher?

1	2	3	4	5
all	most	50%	very few	none

7. Does the teacher help enough?

1	2	3	4	5
always	most of the time	usually	sometimes	never

8. Do the students give the teacher a hard time?

1	2	3	4	5
always	most of the time	usually	sometimes	never

In the spaces provided below write, in order of preference, the names of the teachers who are currently teaching you. That is on line #1 write the name of the teacher you like best, on line #2 write the name of the teacher you like next best, etc. Use the necessary number of lines to include all the teachers you have at this time.

1. ____________________
2. ____________________
3. ____________________
4. ____________________
5. ____________________
6. ____________________

I.

DATA CODING AND ROSTERING FORMAT

0 = no data (omit
this card if relevant
data is missing

Columns	
1-3	student code number
4	1. shop 2. non-shop
5-6	01. auto body 02. auto mech. 03. baking 04. carpentry 05. commercial art 06. cooking 07. drafting and drawing 08. electronics 09. horticulture 10. industrial chemistry 11. machine shop 12. masonry 13. plumbing 14. printing 15. sheet metal 16. stationary engineering 17. humanities (soc. studies and English) 18. math, science, related science
7	1. directive teacher 2. non-directive teacher
8	0. no data 1. high System I 2. low System I
9	0. no data 1. high System IV 2. low System IV
10	0. no data 1. low F 2. high F
11-12	satisfaction (raw score: sum of scales)
13	teacher nomination 1. first 2. second 3. third or lower
14	Grade 1-5
20-21	System I score
22-23	System II score
24-25	System III score
26-27	System IV score
28	System classification 1. I, 2. II, 3. III, 4. IV 5. unclass.
29-30	F-scale score (+30)
31-33	Student's SPOTS rating for this teacher
38-39	Teachers Code Number
40-42	Teachers average SPOTS
43	Teachers system classification
44-45	Teachers I score 1. high 2. low
46-47	Teachers IV score 1. high 2. low
48-49	Teachers F score 1. low 2. high